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Table of Contents

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ORIGINAL ARTICLES— Page

Congenital Heart Disease: III. Coarctation of the Aorta, by J. C. Officer Brown, B. L. Deans, J. M. Gardiner, A. V. Jackson, H. B. Kay and K. N. Morris 857
Kinking of the Aortic Arch, by Paul Ross 864
The Plain Film Survey of the Abdomen, by I. Patricia Waugh 866
Dyspepsia, by Stanley Goulston 867
Dyspepsia, by J. M. Yeates 869
A Rational Treatment of Congenital Talipes Equino-Varus, by J. E. Critchley 871
Rhinoplasty, by Graham Humby 873

REVIEWS—

International Standards for Drinking-Water 873
Emergency Surgery 874
The Waking Brain 874
The Eye in Evolution 874
The Year Book of Pathology 875
Anatomy and Physiology for Nurses 875
A Method of Anatomy 875
The Year Book of Cancer 875
Fractures and Other Injuries 875
The Year Book of Medicine 876
The Principles and Practice of Medicine 876

BOOKS RECEIVED 876

LEADING ARTICLES—

The Australian Academy of Science 877
The International Community of Science and Scholarship 877

CURRENT COMMENT—

Urological Aspects of Carcinoma of the Cervix .. 878
An Opportunity for Post-Graduate Training in Physical Medicine and Rehabilitation 879
The Human Hand 879

ABSTRACTS FROM MEDICAL LITERATURE—

Pædiatrics 880

CLINICO-PATHOLOGICAL CONFERENCES—

A Conference at Sydney Hospital 882

BRITISH MEDICAL ASSOCIATION—

New South Wales Branch: Scientific 884

MEDICAL SOCIETIES—

Pædiatric Society of Victoria 886

CONGRESSES— Page

Association of Surgeons of Great Britain and Ireland: Annual Meeting 888

CORRESPONDENCE—

Dangerous Drugs in Common Use 889
Civil Defence and Thermo-Nuclear Weapons 889
Extended Radical Surgery in the Treatment of Carcinoma of the Breast 890
Growing Up in a Changing World 890
Electro-Convulsive Therapy and Intravenous Anæsthesia 891

OBITUARY—

Joseph Coen 891
Mary Allison Ingram 892

OUT OF THE PAST 893

POST-GRADUATE WORK—

Seminars at the Women's Hospital, Crown Street, Sydney 893
Seminars at the Department of Surgery, University of Sydney 893
The Post-Graduate Committee in Medicine in the University of Sydney 893

NOTES AND NEWS 894

MEDICAL MATTERS IN PARLIAMENT—

House of Representatives 894

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA 895

NAVAL, MILITARY AND AIR FORCE—

Appointments 895

HONOURS—

Birthday Honours 896

NOTICE—

British Medical Association: Victorian Branch .. 896

NOMINATIONS AND ELECTIONS 896

DIARY FOR THE MONTH 896

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 896

EDITORIAL NOTICES 896

CONGENITAL HEART DISEASE: III. COARCTATION OF THE AORTA.

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CONGENITAL COARCTATION of the aorta was first described by Paris (1791). Abbott (1928) analysed 200 post-mortem cases reported since that time. Experimental studies by Blalock (1944) and by Gross and Hufnagel (1944) led to the successful surgical correction of this condition by Crafoord and Nylin (1945) and by Gross (1945). This provided the stimulus to the detailed knowledge now available. Reifenstein *et alii* (1947) reported a clinico-pathological review of a further 104 patients, over the age of two years, and outlined the prognosis of the condition, which they considered to be more serious than had generally been supposed. They found that only a quarter of patients lived far into adult life; the remainder died from bacterial endocarditis, rupture of the aorta, cardiac failure or intracranial hæmorrhage, the average age at death being 35 years.

The operative correction of this defect is now a standard procedure, carrying a mortality rate of under 10%. In 1953 Gross reported his experience with 270 patients operated on for coarctation. In the first 100 operations 15 patients died, but only two patients in the last 100 operations had died. In 88% of the survivors hypertension was completely relieved, in 10% there was a reduction, but not to normal levels, and in 2% hypertension was unaltered.

The purpose of this paper is to review a series of 100 patients seen at the Alfred Hospital, Melbourne, of whom 74 have been submitted to surgical correction, with an operative mortality rate of 7%. The sex incidence in this series was 68 males and 32 females, and the ages when first seen ranged from four months to 56 years. The age and sex distribution is shown in Table I.

MODE OF PRESENTATION.

Forty-one cases were asymptomatic, and were detected on routine examination. In 18 cases the major finding was hypertension, in eight cases a heart murmur, while 15 cases presented with both hypertension and a significant heart murmur. The remaining 59 cases had symptoms when first seen. Nine cases had symptoms due to a serious complication—four due to congestive cardiac failure, two to bacterial endocarditis, two to cerebrovascular accidents, and one to chest pain associated with dissection of the aorta. Of the other 50 patients, in 14 cases the main symptom was dyspnœa

on exertion. In a further 14 the chief complaint was of pain in the legs, often related to effort, but never as clearly as true intermittent claudication. In 11 cases the main symptom was headache; four patients had pain in the chest, but none had the typical features of angina pectoris, and two patients gave a history of rheumatic fever. Three patients in the first decade were under observation for failure to thrive. In one case the main symptom was tiredness on exertion, and in another the presenting symptom was diplopia.

Cleland *et alii* (1956) have suggested that many of the symptoms are due to anxiety subsequent to the knowledge of heart disease. In the 50 cases with less serious symptoms, in only eight cases did we consider that these symptoms developed following diagnosis; in the remainder the initial symptoms were considered to be due to the disease itself.

TABLE I.
Age and Sex Distribution.

Age (Years).	Number.	Male.	Female.
0 to 9	19	11	8
10 to 19	32	24	8
20 to 29	26	17	9
30 to 39	15	10	5
40 and over ..	8	6	2

PHYSICAL SIGNS.

The outstanding clinical signs are the presence of hypertension in the arms, with increased arterial pulsation in the neck, combined with delayed and small pulses in the femoral arteries, and evidence of collateral circulation over the upper part of the chest. A raised blood pressure in a child or young adult should always suggest coarctation of the aorta, and palpation of the femoral pulses will confirm the diagnosis.

Hypertension.

There was usually elevation of both systolic and diastolic blood pressures in the arms, the levels in this series being shown in Table II. The levels of normal blood pressure adopted in this series were a systolic blood pressure not exceeding 130 mm. of mercury, and a diastolic blood pressure not exceeding 80 mm. of mercury in the first decade, and not exceeding 140/90 mm. of mercury thereafter. A normal blood pressure in the arms was encountered in six cases. In a further 24 cases the diastolic pressure was within normal limits, but in nine of these cases there was associated aortic incompetence.

There was often a difference of 10 to 20 mm. of mercury in the systolic pressure in the two arms, and this was regarded as being within the normal range of variation. In two cases the blood pressure in the right arm was markedly lowered, and in each instance was associated with a right subclavian artery arising below the coarctation.

Cardiac Signs.

In the uncomplicated cases, cardiac enlargement was not a feature on clinical examination, although the cardiac impulse sometimes suggested left ventricular enlargement.

In the present series there were only two patients without cardiac murmurs; in one the heart sounds were normal, and in the other there was a triple rhythm due to myocardial failure. In eight cases the typical systolic murmur and thrill of aortic stenosis were present. In a further 17 cases a soft systolic murmur was associated with the early diastolic murmur of aortic incompetence. In two cases the typical pan-systolic murmur and thrill of an associated ventricular septal defect were present. The murmur of an associated patent ductus arteriosus was audible in only two cases, and in one of these only at intervals. In four cases a continuous murmur due to collateral circulation was audible towards the base, more on the left side. This murmur appeared clinically to be less marked than in patent ductus arteriosus, and in each instance the murmur disappeared after operation. In the remaining 65 cases, a systolic murmur was audible at the left sternal edge in 32, at the base in 20, at the apex in six and posteriorly only in one. In a further six cases it was maximal towards the apex, and had late systolic accentuation. These murmurs include aortic ejection murmurs, usually basal and early systolic to mid-systolic in timing. When heard in young people, this type of murmur should suggest the possibility of coarctation. The parasternal murmurs appear to be synchronous with

TABLE IIA.
Systolic Blood Pressures.

Age (Years).	Number of Cases.	Millimetres of Mercury.												
		120	130	140	150	160	170	180	190	200	210	220	230	240
0 to 9	19	—	2	3	4	3	4	2	—	—	1	—	—	—
10 to 19	32	—	3	2	3	6	6	3	6	—	2	1	—	—
20 to 29	26	—	—	—	2	—	2	7	3	7	2	—	3	—
30 to 39	15	—	—	—	—	2	—	2	3	1	2	4	—	1
40 and over ..	8	—	—	—	—	—	3	—	—	—	4	1	—	—
Total ..	100	—	5	5	9	11	15	14	12	8	11	6	3	1

TABLE IIB.
Diastolic Blood Pressures.

Age (Years).	Number of Cases.	Millimetres of Mercury.								
		60	70	80	90	100	110	120	130	140
0 to 9	19	—	—	4	5	5	3	2	—	—
10 to 19	32	1	3	4	8	8	7	—	1	—
20 to 29	26	1	2	1	1	9	8	3	1	—
30 to 39	15	—	—	2	2	3	3	5	—	—
40 and over ..	8	—	—	—	1	2	4	1	—	—
Total ..	100	2	5	11	17	27	25	11	2	—

those heard posteriorly over the coarctation, and are mid-systolic to late systolic in timing. This is a distinguishing feature from innocent parasternal murmurs. The apical systolic murmurs were due in several cases to mitral valve disease of rheumatic origin, but in others were unexplained.

In 10 of the above-mentioned cases a mid-diastolic murmur was audible at the apex. Four of these patients had associated aortic stenosis; two of them were subsequently examined at autopsy, when the mitral valve was found to be normal. In two cases there was associated aortic incompetence; in one of these the murmur persisted post-operatively, and in this case there were findings of mitral valve disease. In one case (Case 60) there was an associated aorto-pulmonary septal defect, and no definitive operation was carried out. In the remaining three cases no evidence of mitral valve disease was detected on further examination, and in two the murmur disappeared post-operatively. Both patients had had moderate cardiac enlargement pre-operatively, and there was a decrease in the size of the heart post-operatively. In the third case, a boy aged 12 years, the murmur persisted post-operatively, although on X-ray examination the heart size was normal both before and after operation.

In two further cases a mid-diastolic murmur was first noted post-operatively; no definite reason for this has been established.

The collateral circulation is best palpated along the borders of the scapulæ, and occasionally it is demonstrable in the axillæ or over the internal mammary arteries. It was well described by Bramwell (1946). In this series it was detected as early as the age of five years. However, it was not demonstrated in all cases.

Tortuous retinal vessels have been described by Granström (1951). In this series the earliest age at which they were observed was 15 years, associated with marked hypertension.

The femoral artery pulse was characteristically delayed and usually of poor volume, although in only two cases was it impalpable. In some cases the pulse volume appeared reasonably normal, but there was still the characteristic delay. This, however, may be difficult to detect with more rapid pulse rates. The delay was measured by simultaneous pulse tracings of the brachial and femoral arteries, and averaged 0·12 second, the shortest delay being 0·06 second and the longest 0·20 second. The decreased pressure in the femoral arteries is confirmed by measurement of the femoral artery blood pressure; for clinical purposes the ordinary cuff method has proved quite adequate. In the normal subject this method shows a systolic blood pressure reading at least 20 to 30 mm. of mercury above the brachial artery pressure. The diastolic pressures are usually similar to those of the brachial artery. In our series the femoral artery systolic pressure has always been markedly lower than that in the brachial (at least 30 mm. of mercury). In the majority of cases in which the brachial systolic pressure was over 200 mm. of mercury, the difference was much more marked. However, in two of these cases, the pressure difference was only 30 to 40 mm. of mercury, and they did not get a satisfactory fall in blood pressure after operation.

Electrocardiograph examination was performed in 95 cases, and showed evidence of left ventricular enlargement in 49 cases; in four of these cases there was marked *T* inversion in leads V3 to V5, but in no case was there a history of ischæmic chest pain. At necropsy of one of these patients, a man aged 37 years, the coronary arteries appeared normal. In four young patients, there was left axis deviation, and in one case partial right bundle branch block. In two cases there was evidence of combined hypertrophy, in one with associated patent ductus arteriosus and in the other with associated ventricular septal defect. One patient showed a Wolff-Parkinson-White syndrome, and had a history of paroxysmal tachycardia. In the remaining 38 cases the electrocardiograph readings were within normal limits; in sixteen cases there was evidence of slight cardiac enlargement radiologically. On the other hand, in 10 cases with electrocardiograph evidence of left ventricular enlargement, the radiological appearance of the heart was considered to be within normal limits.

The electrocardiogram was not found to be of great assistance in the assessment of the cases, except for children, in whom the pattern of left ventricular enlargement was considered to be an indication for earlier operation.

Associated Anomalies.

Aortic Incompetence.

Aortic incompetence was the commonest associated lesion. A clinical diagnosis was made in 17 cases on the basis of an early diastolic murmur. In only four of these cases was there frank incompetence with water-hammer pulse and low diastolic blood pressure. In the other 13 cases there was no appreciable hæmodynamic effect due to the aortic valve lesion, and in only five of these cases was the diastolic pressure below 100 mm. of mercury. In 26 of the 83 cases without clinical evidence of aortic incompetence, the diastolic pressure was also below 100 mm. of mercury.

The incidence of aortic incompetence increased with age, being 12% for patients below the age of 20 years, 20% for those between 20 and 29 years, and 33% for those between 30 and 39 years. It was detected in only one patient of the nine patients over the age of 40 years.

In two cases, including one with severe incompetence, there was a clear history of rheumatic fever. The other 15 patients are presumed to have had bicuspid aortic valves.

The electrocardiograph gave normal findings in only three cases, the remaining 14 cases showing left ventricular enlargement or preponderance patterns.

The radiological features are discussed in a later section.

Operation was performed on twelve patients; in two cases in which incompetence was severe, there was improvement in one but no significant effect in the other. In the remaining 10 cases, with less severe incompetence, in only six patients was the pressure reduced to normal, whereas of the 49 patients with raised blood pressure who did not have aortic incompetence, and who had the coarctation resected, 42 had normal blood pressure post-operatively.

Aortic Stenosis.

Aortic stenosis was present in eight cases, the diagnosis being based on a harsh systolic murmur and thrill in the aortic area. The phonocardiogram showed the typical loud diamond-shaped systolic murmur, fading before the second heart sound, which in these was not reduced in intensity.

The blood pressure was elevated above normal in seven cases; and in only two cases was the pulse typically anacrotic. In four cases there was a mid-diastolic murmur audible at the apex, but in no case was there a history of rheumatic fever, and the aortic valve lesion was regarded as congenital in all cases. In two cases with a mid-diastolic murmur, the mitral valve was normal at necropsy. The electrocardiograph gave normal findings in only two cases. Three patients were submitted to operation, which was successful, but two of these patients died suddenly within two years, one aged six years and the other aged 28 years at the time of operation. The other patient has since had a successful aortic valvotomy. Two patients have died without operation, one aged 21 years and the other 40 years, both in cardiac failure.

Patent Ductus Arteriosus.

Patent ductus arteriosus was present in four cases in this series. In two cases the ductus joined the aorta above the coarctation.

Case 23.—A boy, aged four and a half years, was thriving poorly. His blood pressure was 155/100 mm. of mercury, and no murmur of a patent ductus was audible. The electrocardiogram showed right and left heart enlargement

with *rSr* pattern in lead VI. X-ray examination showed some enlargement of the heart and pulmonary plethora, but no rib notching. At operation a patent ductus arteriosus was present above the coarctation.

CASE 100.—A boy, aged six years, presented with a history of paroxysmal tachycardia. His blood pressure was 170/110 mm. of mercury. He had a soft continuous murmur in the first left intercostal space, with a louder pansystolic murmur lower at the sternal edge. The electrocardiogram showed the Wolff-Parkinson-White syndrome. On X-ray examination cardiac enlargement and slight pulmonary plethora were evident. At operation a moderate-sized patent ductus arteriosus was found near the coarctation.

In the other two cases the ductus was below the coarctation.

CASE 39.—A girl, aged seven years, had had no audible ductus murmur, except on one occasion at the age of three years, when she suffered from pneumonia. Her blood pressure was 170/90 mm. of mercury in the arms, and 100/60 mm. of mercury in the legs, and there was no evident cyanosis of the lower extremities. The electrocardiogram showed right and left heart enlargement, and on X-ray examination there was considerable cardiac enlargement, with a large main pulmonary artery and pulmonary plethora and no rib notching. Angiocardiographic examination showed early opacification of the descending aorta. At operation the arch of the aorta terminated in a blunt end distal to the origin of the left subclavian artery. The descending aorta was a direct continuation of the duct. The blunt end of the arch was attached to the descending aorta by a cord about half an inch in length. It was not difficult to close the ductus and join the descending aorta end to side to the blunt arch, and she has progressed very well.

CASE 60.—A girl, aged eight years, was undersized, and had a shoulder girdle deformity, although not typical of Turner's syndrome. Her blood pressure in the arms was 210/110 mm. of mercury and in the legs 160/110 mm. of mercury, and there was no cyanosis of the lower extremities. She had an early diastolic murmur suggestive of aortic incompetence, and a mid-diastolic murmur at the apex. The electrocardiogram showed left heart enlargement, and X-ray examination showed moderate left ventricular enlargement with a wide aortic shadow, rib notching and pulmonary plethora. At operation she was found to have a descending aorta continuous with a large patent ductus arteriosus; in addition she had a large aorto-pulmonary window. The coarctation was not resected.

It is noted that in only two of these cases was a typical machinery murmur audible; on the other hand in four other cases, a continuous murmur has been audible high up beneath the clavicles, and at operation has been found to be due to large anastomotic vessels.

Ventricular Septal Defect.

A ventricular septal defect was present in three patients, and all have been submitted to successful operation for their coarctation.

CASE 58.—A boy, aged two years, had a relatively soft systolic murmur, a loud second heart sound in the pulmonary area, an ejection sound, and pulmonary plethora on X-ray examination. Catheter study showed a large left-right shunt in the ventricle.

In the other two cases, the diagnosis was made on clinical grounds.

CASE 33.—A boy, aged 10 years, had a harsh systolic murmur and thrill in the fourth left interspace, which persisted post-operatively, and X-ray examination showed plethora.

CASE 61.—A girl, aged 21 years, had a harsh systolic murmur and thrill in the fourth left interspace, and on phonocardiographic examination it was pan-systolic. Although the X-ray film did not show plethora, it was considered that the findings were consistent with a ventricular septal defect, and the murmur has remained unchanged post-operatively.

There was one other patient with persistent cardiac enlargement and basal systolic murmur in whom the diagnosis of the lesion has not yet been established.

Of the other congenital anomalies encountered, two cases had anomalous origin of the right subclavian artery below the coarctation. No other associated non-cardiac congenital anomalies were encountered.

RADIOLOGICAL APPEARANCES.

Radiological appearances will be described under three headings: (i) the appearance of the upper mediastinum; (ii) the size and shape of the heart; (iii) rib notching.

The Appearance of the Upper Mediastinum.

The characteristic feature of the cardio-aortic outline in coarctation of the aorta, as may be expected, is to be found in that portion of the outline which is formed by the aorta itself. Proximal to the coarctation, the aorta is frequently elongated and slender, and the left subclavian artery enlarged at its origin; a narrowing of varying extent exists at the coarctation itself, and a dilatation of the aorta — so-called "post-stenotic dilatation" — is often present immediately distal to the coarctation. Also the stenosis may pull the descending part of the arch downwards and inwards. Depending on the relative severity of these various abnormalities, so there is produced in the radiograph a deformity of the normal outline of the upper mediastinum.

In attempting to demonstrate this deformity, examination in the oblique position (Saltzman, 1954) was used in practically every case. In one case only it was felt that the coarctation and the enlarged origin of a left

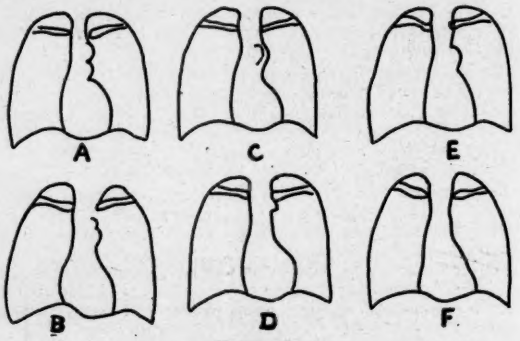

FIGURE I.

Deformity of the upper mediastinum: A, double knuckle appearance; B, dimple appearance; C, double imprint appearance; D, high knuckle appearance; E, low knuckle appearance; F, aortic small and inconspicuous appearance.

subclavian artery were demonstrated in a film made with slight rotation of the patient to the right (modified left occipito-anterior position). In the overwhelming majority of cases, however, the demonstration was not conclusive enough to add materially to the information to be derived from the postero-anterior film.

In the postero-anterior film the deformity of the upper mediastinum was seen most characteristically as a "double aortic knuckle" — a roughly hour-glass appearance produced by the aorta or the enlarged left subclavian artery proximal to the coarctation and by the post-stenotic dilatation distally (Figure IA). Both of these "knuckles" may be associated with indentations of the œsophagus, producing a double "aortic impression" in the outline of the barium-filled œsophagus. When definite, this double knuckle appearance is characteristic of coarctation of the aorta, and is a most valuable radiographic sign. It was present in 16 cases in this series.

In 23 others, variants of this double knuckle appearance were recognizable in the original postero-anterior radiographs. Ten showed a shallow dimple-like indentation of the left border of the aortic outline, which indentation presumably corresponded to the position of the coarctation (Figure IB). In two, what may be called a double imprint of the aortic knuckle was present, caused presumably by the superimposition of an "end-on" view of the aorta above the coarctation on an "end-on" view of a post-stenotic dilatation (Figure IC). In seven, the lower component of the double knuckle pattern was missing, and there was what appeared to be a small aortic knuckle unusually high in position (Figure ID).

Several of these cases were reported at operation as having an enlarged left subclavian artery. In two the reverse appearance was present, only the lower component of the double knuckle being evident (Figure IE). In these two cases a well-marked post-stenotic dilatation had produced what appeared to be a normal aortic knuckle unusually low in position. In four cases this post-stenotic dilatation was so well developed and at such a level that it simulated a normal aortic knuckle in the postero-anterior projection. Only by rotation of the patient at fluoroscopic examination into the left occipito-anterior position was it possible to show that the structure causing the appearance was situated in the posterior mediastinum.

In the 39 cases so far referred to, a recognizable deformity of the upper mediastinum was present, but in approximately half of the cases, the aortic abnormality was expressed simply as an absence of the aortic outline normal for the patient's age and general cardiac status, and the description usually given was that "the aorta was small and inconspicuous" (Figure IF). Nevertheless, this appearance, when correlated with other evidence of coarctation of the aorta, was a valuable corroborative sign in diagnosis.

In 10 cases the appearance of the upper mediastinum in the postero-lateral radiographs can only be described as "within normal limits". Two of these cases were of infants with large thymus glands. In two cases cardiac failure was present, and a dilated superior vena cava probably enlarged the upper mediastinal shadow. In the remainder it must be assumed that either the aorta proximal to the coarctation or an enlarged left subclavian artery exactly simulated a normal aortic knuckle.

In one case the quite unusual feature of a widened upper mediastinal shadow was demonstrated. When associated with clinical and other evidence of coarctation of the aorta, such an appearance should suggest aneurysm formation in one of the large vessels. In this case a dissecting aneurysm of the ascending aorta was the cause.

In the great majority of cases the ascending portion of the aorta was inconspicuous, and this was a significant factor in producing the general appearance of deformity of the upper mediastinum. In five cases, however, the appearance of a normal ascending aorta, in conjunction with an inconspicuous or deformed arch and upper descending aorta, was present. Two of these patients had aortic stenosis; one had aortic regurgitation. An aneurysm of one of the large collateral vessels was found at operation on another patient, and the fifth patient, at operation, had an ascending aorta which appeared to divide into two large subclavian arteries.

Demonstration of the exact site and length of the narrowed segment was not required, since surgical opinion was that where the diagnosis of coarctation was established, provided there was no associated contra-indication, actual inspection of the lesion at thoracotomy was advisable and was itself the only infallible method of determining operability. Hence selective angiography and tomography were required only rarely.

Calcification of the coarcted segment was demonstrated in one case.

Size of the Heart.

In slightly over half of the cases (53), cardiac enlargement, usually of moderate degree, was present. In 47 — almost half of the cases — the heart size was normal.

In considering the size of the heart in coarctation of the aorta, the correlations which suggest themselves as likely to provide information concern (*a*) blood pressure, in relation to the blood pressure normal for the patient's age group; (*b*) the presence or absence of associated lesions; (*c*) the type and severity of the coarctation present.

Blood Pressure.

Of 53 patients showing cardiac enlargement, all except three had hypertension. Forty-seven presented with hearts of normal size, although seven of these showed a contour consistent with slight disproportionate enlargement of the left ventricle. These hearts of normal size were also associated with hypertension in all except three cases. Of this series then, it can be stated that hypertension was a practically invariable finding in all age groups, irrespective of whether or not cardiac enlargement was demonstrable.

This being so, the question as to whether the cardiac enlargement found was in relation to the duration of the hypertension suggests itself. This would seem to be so if, for instance, cardiac enlargement amongst hypertensive subjects was commoner in the older age group. Review shows, however, that approximately half of the hypertensive patients in all age groups had some cardiac enlargement, and no clear evidence emerges to indicate that cardiac enlargement was a function of the probable duration of the hypertension.

Nor was there any evidence in this series that the degree of hypertension was directly related to cardiac enlargement. More than half of the patients aged 20 to 40 years, who had hearts of normal size, gave systolic pressure readings of over 200 mm. of mercury.

Associated Lesions.

Cardiac enlargement was almost always present with an associated defect. In some instances other features attributable to the additional lesion were demonstrated.

Aortic incompetence was present in 17 cases. All of these patients showed cardiac enlargement except three. Of the 14 patients with large hearts, three had very marked enlargement.

Aortic stenosis was associated with cardiac enlargement in four of the eight cases. In three the enlargement was very marked. In one of these and in one with moderate cardiac enlargement the ascending aorta was prominent.

An associated patent ductus arteriosus was present in four cases. Three showed cardiac enlargement. In two cases the ductus was proximal to the coarctation: one case was in a boy, aged four and a half years, and in addition to cardiac enlargement, well-marked pulmonary plethora was visible; the other patient, a boy aged six years, had moderate enlargement, but only slight pulmonary plethora. In the other two cases, the ductus was distal to the coarctation: one case was in a girl, aged eight years, who showed moderate cardiac enlargement with wide aortic shadow, some pulmonary plethora and notching of the left seventh rib; the other patient was a girl, aged seven years, who had very marked cardiac enlargement and huge pulmonary arteries with gross pulmonary plethora.

One patient had a ventricular septal defect with a heart of normal size and shape and without visible pulmonary plethora. Two others, however, had marked cardiac enlargement and prominent evidence of pulmonary plethora; in one the cardiac outline indicated mainly right ventricular enlargement, in the other, mainly left ventricular.

Subacute bacterial endocarditis was present in two cases — one associated with aortic stenosis, the other with vegetations on the wall of a post-stenotic dilatation. In neither case was the size or the shape of the heart exceptional. Both showed moderate cardiac enlargement only.

An as yet undiagnosed additional defect was presumably present in a child, aged five and a half years, with a very marked cardiac enlargement, mainly left ventricular.

After operation, a few hearts previously enlarged became of normal size. In most the size remained unaltered.

Shape of the Heart.

In almost half of the cases (47) cardiac size and shape were normal. In a few, in which the over-all heart size was normal, cardiac contour suggested slight disproportionate enlargement of the left ventricle. The great majority of the enlarged hearts (53) showed a contour indicating left ventricular enlargement. In seven only, the general shape was not distinctive; in one

(with ventricular septal defect) the general shape conformed more to that of right ventricular enlargement.

No direct radiographic evidence indicative of the type or the degree of severity of the coarctation was elicited.

Rib Notching.

Rib notching was present in some degree in all cases in adults. Notching was not seen in patients under the age of five years, and was relatively rare in patients aged less than 10 years. Three observers searching independently agreed that a shallow indentation of the lower anterior margins of the right and left ribs of a boy, aged five years, could be ascribed only to incipient rib notching. Definite notching of the left eighth rib only was present in a child, aged eight years. One boy, aged ten and a half years, with left ventricular hypertrophy and a blood pressure of 170/125 mm. of mercury in the arms, showed definite notching of the third and sixth right and left ribs.

Notching was found to occur in the second and ninth ribs of both the right and the left sides of the body, in the greatest variety of pattern from patient to patient. Nothing was observed to suggest that the exact pattern of rib notching had clinical significance. There was no evidence, for instance, to suggest that the functional strain placed upon the heart was reflected in the extent and degree of the rib notching. Rib notching was present in the majority of patients over the age of 10 years, and was as marked in degree and extent in those who showed hearts of normal size as it was in cases of most cardiac enlargement.

TREATMENT.

Indications for Surgery.

The serious prognosis in coarctation of the aorta has been well described by Reifenstein *et alii* (1947), and by Campbell and Baylis (1956). In view of this we have considered that operation should be performed on all patients except those with the milder forms, or those with serious complications.

We have thought that the ideal age of patients for operation is between eight and fifteen years. Before eight, the aorta is small and may not give an adequate lumen in later life if the anastomosis does not enlarge with development, and with increasing age the operation becomes more difficult and secondary changes in the aorta begin to appear. However, with increasing experience, we are tending to operate earlier. Only 17 of our patients were between the ages of eight and fifteen years (Table I). Ten were operated on under nine years of age because there was evidence of cardiac strain or excessive hypertension. Forty-seven were over 15 years of age before presenting for operation. In the older patients anastomotic vessels are more troublesome in the making of the incision, intercostals are more easily damaged in the freeing of the aorta, tiny aneurysms where the intercostals join the aorta may be troublesome and post-stenotic dilatation tends to be greater. Although atheromatous plaques have been present in a number of the patients in the older age group, these have not been sufficient to complicate anastomosis.

In this series there were 26 patients who were not submitted to operation. In four cases, operation was advised but refused. Operation has been deferred for eight patients, as the features were considered to be mild, and they are being maintained under observation.

In 11 cases operation was deferred or impossible owing to complications. In five there was associated aortic stenosis; these cases have been deferred pending further technical improvements, to permit both lesions to be dealt with adequately. Of three patients in the fourth decade, two had previous cerebro-vascular accidents, one with associated psychiatric disturbance, and another case presented with dissection of the aorta. One case presented with terminal cardiac failure, and in another case operation was not advised because of diabetes mellitus and retinopathy. This patient was operated on at another hospital and had considerable improvement in her blood pressure and retinal changes, but subsequently died in renal failure.

Finally, there were three patients over the age of 40 years, in whom operation was not advised, one having few symptoms and gross kyphoscoliosis, another being in cardiac failure, and the third was aged 56 years and able to lead a useful existence.

Four of these patients have died, two with associated aortic stenosis, one from congestive cardiac failure and one from aortic dissection. In addition, one patient in the operative series, who had no definitive operation (Case 60), died subsequently from cerebral hæmorrhage.

We have operated on 74 patients for this condition. Table III shows the ages of these patients. The youngest patient was aged two years, and the oldest, 46 years.

TABLE III.
Age at Operation.

Age. (Years.)	Number of Patients.	Number of Deaths.
0 to 9 ..	12 (1 inoperable)	1
10 to 19 ..	27	0
20 to 29 ..	23 (1 inoperable)	3
30 to 39 ..	10	1
40 to 49 ..	2	0

Operative Technique.

Anæsthesia is induced with "Pentothal" and curare, and after insertion of an endotracheal tube, is continued with nitrous oxide and oxygen with fully-controlled respiration. Since July, 1954, we have used "Arfonad" to induce hypotension, and this is started before the incision is made and is maintained until the anastomosis is almost completed, when the blood pressure is allowed to rise slowly. We have used this procedure in about 30 cases, and have never regretted it. In most cases the blood pressure has been reduced to 80 to 100 mm. of mercury from the start of the operation. Bleeding from the chest wall is minimized, dissection of intercostal arteries is much safer, easier and quicker, and trauma to the aortic wall from the application of clamps is much less likely. With this technique the operation rarely takes over two and a half hours, and we believe that the greatest risk of this operation is infection with penicillin-resistant staphylococci, and that the incidence of infection varies directly with the operating time, so that any method that saves time without sacrificing precision of operative technique is of value.

As a routine, we resect the fifth rib, and in a few patients in whom access was insufficient, a small piece of the fourth rib was removed. The recurrent nerve is rarely seen and has not been injured. Occasionally, a small leak of lymph from the bed of the aorta has been noticed and controlled by ligature on one or two leaking points. After the aorta is freed above and below the obliterated ductus, this structure is ligated and divided, and intercostal arteries close to the coarctation are ligated and divided. If it is difficult to get access to a right intercostal artery, we may leave it until the aorta has been clamped and divided, as access to a vessel in this situation is much easier when the lower end of the aorta has been turned down. Since July, 1952, we have used interrupted sutures in all cases, and find accurate anatomosis is easier by this technique. We use Willis-Potts or "Atraugrip" type of coarctation clamps with a Willis-Potts or Bron's vice to hold the clamps, and place three mattress sutures in the difficult postero-medial angle before the ends are approximated by tightening the vice. These three stitches are then tied and another is placed in the opposite corner and tied, and then the anterior suture line is completed by placing mattress sutures to divide the gaps between those already placed, until there is a suture about every eighth of an inch. Between these mattress sutures, interrupted single sutures are inserted as required. The aorta is then rotated and the posterior suture line completed in the same way. We use 00000

arterial silk on a small curved needle for all vascular sutures. When the suture line is completed, the vice is removed and the lower clamp released. As a rule there is no bleeding from the suture line, but occasionally the clamp has to be reapplied, and one or more extra sutures inserted. Slight oozing will stop in a few minutes with swab pressure, but a definite spurt requires an extra suture. The lower clamp is always removed first and, if the anastomosis seems satisfactory, the upper one is removed and no ill-effect has followed rapid reopening of the aorta. We endeavour to make the anastomosis as large as the upper part of the aorta will permit, but we prefer to leave it slightly smaller than full-size, rather than use a graft. If we cannot achieve an anastomosis that is at least 80% of the size of a normal aorta, we use a graft. The mediastinal pleura is repaired, a tube is placed in the seventh intercostal space anteriorly, with its end far back near the diaphragm, and the wound is closed.

Grafts.

Grafts were used in six cases, and subclavian-aortic anastomoses were done in two. One of the subclavian-aortic anastomoses was done early in the series because the coarctation was just below the origin of the subclavian artery. Similar cases have since been treated by direct anastomosis, and if this operation had occurred later in the series, the subclavian artery would not have been used. Excluding this patient, there were seven in whom direct anastomosis was impossible.

In a husky lad, aged 20 years, after excision of the coarctation, a little too much tension was necessary to approximate the ends, and the aorta split along the proximal clamp. This end was, therefore, sewn up, and the subclavian artery was divided and turned down and joined to the lower part of the aorta. In three patients, aged 24, 31 and 46 years, after excision of a coarctation, it was apparent that the ends would not meet, and homografts of approximately one inch in length were inserted. A man, aged 39 years, had an aneurysm of an intercostal artery, which required resection of about one and a half inches of aorta for its removal, and again a graft was necessary. A child, aged 12 years, with uncontrolled subacute bacterial endocarditis, had an infected aneurysm distal to the coarctation, and again a graft of one and a half inches was required. The last graft was needed for a girl, aged 24 years, with a long stricture extending into the descending aorta associated with four small aneurysms.

Berry-sized aneurysms of intercostal arteries were encountered in a number of patients and, where they were not included in the segment to be resected, were treated by distal ligation and excision, with suture repair of the hole in the aorta after clamps had been applied to take off the tension.

Results.

Of the 74 patients submitted to operation, two proved to be inoperable. One girl, aged 24 years, was found to have narrowing of approximately the whole length of the thoracic aorta with extensive calcification; surgical relief was considered impossible in 1950. The other, a girl aged eight and a half years (Case 60), had associated patent ductus arteriosus and a large aorto-pulmonary septal defect, and has already been described.

In 72 cases the coarctation was excised. Continuity was restored by end-to-end anastomosis in 64; in two the subclavian artery was divided and turned down and anastomosed to the descending aorta, and in six arterial homografts were used.

Three patients had non-fatal complications.

One patient developed an empyema that required drainage. For some months before operation this girl had been showing multiple minute petechiæ around her ankles, and bacterial endocarditis was suspected, but not proved. At operation there were no vegetations at the site of the coarctation, but she had no more petechiæ. Two patients developed hemiplegia after operation. In one it was noticed immediately after operation and recovery was complete, but in the other it developed on the fifteenth day, and this patient has residual disability.

Deaths.

Five patients died as a result of the operation.

CASE 2.—At operation, a right intercostal artery was torn, and about two hours were spent controlling the bleeding. After the patient's return to his bed, he showed signs of further hæmorrhage, and was treated by repeated aspiration and blood transfusion for the next 12 hours. After this he remained well for four days with a massive hæmothorax. On the fifth day he complained of severe pain in his back, and his condition deteriorated. The hæmothorax was evacuated, but he died shortly after this operation. Autopsy showed an intact anastomosis. His aorta conained a long, thin, non-occluding clot attached to the suture line and extending proximally through the aortic valve and ventricle and attached again to his mitral valve.

CASE 24.—The patient was completely well and afebrile for ten days, and then developed high fever unresponsive to antibiotics. A penicillin-resistant staphylococcus was cultured from his blood stream, and he died on the nineteenth post-operative day after rupture of his anastomosis, secondary to this infection.

CASE 43.—The patient had an adherent lung, and separation left an oozing pleural surface. Operation was uneventful, but he developed a moderate hæmothorax and a very distended abdomen. Intestinal obstruction was suspected, and evacuation of the hæmothorax was delayed for ten days until the abdominal distension had subsided. The clot was then removed. Some fever persisted, and five days later he collapsed with a massive hæmothorax. Because it was believed that the anastomosis had ruptured in consequence of another penicillin-resistant stapnylococcal infection, the chest was not reopened. Autopsy showed an intact suture line, and no source of bleeding was recognized. There was a considerable old retroperitoneal hæmatoma, which did not extend up to the diaphragm. This was thought to explain his early post-operative distension, and in retrospect it seems probable that this case was an example of necrotizing arteritis.

CASE 50.—A child, aged seven years, had a cardiac arrest as the anastomosis was completed. The heart was restarted by massage, but she remained decerebrate, and died some hours after operation.

CASE 70.—The patient was first seen two years before operation with a very large heart and commencing failure. He refused to consider operation, but two years later returned and requested it. His blood pressure, originally over 200 mm. of mercury, was now about 160 mm. of mercury. His cardiac failure was partially controlled, and operation completed without difficulty, but his heart failed to respond, and he died 14 days after operation.

Follow-Up Results.

Of the 67 patients operated on successfully, six had a normal blood pressure prior to operation. Of the remaining 61 patients, in 48 the blood pressure in the upper limbs was reduced to below 140/90 mm. of mercury with a corresponding rise in the femoral artery pressure. Three of these patients died subsequently. Two of them were patients previously mentioned, who died suddenly from unrelieved aortic stenosis, and the third committed suicide three years after operation. In 11 patients the blood pressure was reduced, but not to normal. Five of these had aortic regurgitation in addition to their coarctation, and one of these five required a graft. Two of the other patients had had a subclavian aortic anastomosis; in one the blood pressure was reduced from 215/80 to 155/70 mm. of mercury, and in the other from 215/115 to 170/100 mm. of mercury. There were two patients in whom the blood pressure was not reduced; one of these had aortic incompetence in addition to his coarctation.

PATHOLOGY.

All the operation specimens showed coarctation of the adult type, with the narrowing at the level of the aortic insertion of the ligamentum arteriosum or immediately distal to it. Externally the narrowed segment showed as a concavity in the outer contour of the vessel involving all the walls except that into which the ligamentum arteriosum inserted. Internally the zone of narrowing was short and clearly defined, and formed a thin shelf or diaphragm. In a few the diaphragm was imperforate and the obstruction complete. In a few more the eccentric opening was greater than a quarter

of an inch in diameter. In the majority the diameter of the opening was between ¼ inch and ½ inch.

Microscopically, the obstructing shelf contained a surprising amount of smooth muscle. It also contained fibrous and elastic tissue, but the large amount of muscle suggested that the mechanism of obstruction might be muscular contraction rather than fibrous constriction.

Nine of the 13 patients who died were examined at autopsy. The other four patients died outside the hospital or were reported to the coroner, and so hospital necropsies were not possible.

The complications found, with probable causes of death and a list of other major cardiovascular anomalies, are given in Table IV. Out of the nine patients, three had bicuspid, but probably efficient, aortic valves, and three others had severe aortic stenosis.

TABLE IV.

Complications, Probable Causes of Death and Other Cardio-vascular Anomalies.

Case No.	Complications and Probable Causes of Death.	Other Cardio-vascular Anomalies.
2	Post-operative aortic thrombosis.	——
10	*Streptococcus faecalis* endocarditis of aortic valve.	Severe aortic valve stenosis, aberrant origin of right subclavian artery.
24	Staphylococcal aortic endothelitis at site of resection.	——
37	Acute cardiac failure.	Severe aortic valve stenosis.
42	Sudden death.	Severe aortic valve stenosis.
43	Post-operative hæmorrhage.	Bicuspid aortic valve.
45	Cardiac failure.	Bicuspid aortic valve.
70	Left cerebral infarct, ? old, cardiac failure.	Bicuspid aortic valve.
97	Dissecting aneurysm of aorta.	——

The immediate cause of death was not always certain, but in two cases the fatal complication was clearly a bacterial infection, in one endocarditis of aortic valve, and in the other infection of aortic intima at the site of the resection. In another the fatal complication was a spreading aneurysmal dissection of the aorta.

CONCLUSIONS AND SUMMARY.

Our experience of 100 patients with coarctation of the aorta, of whom 74 have been submitted to operation, is reviewed.

We believe that the majority of patients with coarctation should be operated upon. The best time for operation has been considered to be between the ages of eight and fifteen years, but it is done earlier if there is evidence of cardiac strain or severe hypertension. Most patients under 30 years of age should be operated upon, and above this age we do not hesitate if the coarctation is producing symptoms, but operation is not indicated in the terminal stages of cardiac breakdown. Aortic incompetence is not a contraindication to operation, but may vitiate the result. Aortic stenosis does seem to be a contraindication unless it can be relieved at the same time or later. Hypotension induced with "Arfonad" is a very valuable adjunct to operation. Interrupted sutures, using 00000 arterial silk should be used for the anastomosis. The results of surgical treatment have proved gratifying.

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KINKING OF THE AORTIC ARCH.

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IN 1951, Souders *et alii* defined as an entity a condition which they termed pseudo-coarctation, and reported three cases. Since then cases of this condition, usually denoted as kinking or buckling of the aortic arch, have been described with increasing frequency, but less than 50 cases have been reported in all. It is probably not as rare as this figure suggests, since recently Stevens (1958) collected data on 11 new cases and Steinberg (1956) refers to 10 cases. Since the condition is not a familiar one, and gives abnormal shadows on routine X-ray examination of the chest, it seems warranted to illustrate it by means of three new cases.

The deformity consists of a kinking of the aortic isthmus medially and anteriorly, so that the descending portion of the aortic arch passes downwards, forwards and to the right to the region of the insertion of the ligamentum arteriosum, and then the aorta turns abruptly to the left and passes laterally and downwards as the descending thoracic aorta. The kinking is associated with a short ligamentum arteriosum. The transverse portion of the aortic arch frequently lies higher than usual, and it may extend further to the left. All these changes may also be seen in coarctation of the aorta, but this term denotes narrowing of the aortic lumen, whereas there is no constriction of the aortic lumen in the condition of aortic kinking.

CASE I.—The patient, a female, aged 40 years, had post-puerperal depression. Her blood pressure was very variable, the maximum being 185/135 mm. of mercury. The femoral pulses were palpable, and the blood pressure in the lower limbs was not decreased. There was a pre-systolic triple rhythm, but no bruits were heard. A routine postero-anterior film of the chest shows a soft-tissue density in the left superior mediastinum; an indentation in the aortic shadow can be seen (Figure IA). In the left anterior oblique projection, the kinking of the aortic isthmus produces a posterior impression on the œsophagus (Figure IB). In the antero-posterior films taken after barium swallow, a very large aortic impression is seen on the left border of the œsophagus, unusually low in the mediastinum. It is due to the kinked aortic isthmus, not to the aortic arch (Figure IC). In the aortogram, the opacified kinked aorta is clearly shown (Figure ID).

CASE II.—The patient, a male, aged 69 years, had bronchitis and arteriosclerosis. There were no pertinent physical findings. A postero-anterior film of the chest shows the aortic knob to be abnormally prominent (Figure IIA). In the left anterior oblique chest film, moderate kinking at the aortic isthmus is clearly shown (Figure IIB).

CASE III.—The patient, a female, aged 39 years, was asymptomatic, and was referred by a mass survey chest clinic for investigation. Examination revealed moderate diffuse firm enlargement of the thyroid gland. The blood pressure was 120/95 mm. of mercury, and no bruits were heard. In the postero-anterior film of the chest, a diffuse soft tissue density is seen in the left upper mediastinum

(Figure IIIA). In the antero-posterior film of the chest taken after barium swallow, a moderate-sized indentation is seen on the left margin of the œsophagus below the minimal aortic knob impression (Figure IIIB). In the left anterior oblique film of the chest taken after barium swallow, a large impression, due to the kinked aorta, is shown (Figure IIIc). In the lateral film of the chest, there is a sharp kink at the aortic isthmus (Figure IIID).

Clinical Features.

There are no symptoms attributable to this deformity. In some of the reported cases a systolic murmur is heard anteriorly or posteriorly over the region of the kink, probably due to the turbulence of the blood there, but in others no murmur is audible. The blood pressure is normal in both the upper and lower extremities. A number of associated defects has been reported, including ventricular septal defect, partial or complete obstruction of the left subclavian artery, patent ductus arteriosus and aortic sinus aneurysm, and these may give rise to clinical signs.

Radiographic Features.

Almost invariably the sequence of events is as follows. The patient has an X-ray examination of the chest, and an abnormal shadow is seen in the left upper mediastinum. This prompts further radiographic investigation, and eventually the diagnosis is made.

In the postero-anterior film of the chest one of the following appearances may be noted. (i) A soft tissue mass in the left superior mediastinum above a rather low "aortic knob". The latter actually represents the descending aorta passing almost horizontally backwards and to the left just distal to the kinked isthmus, whereas the soft tissue density above it is the descending portion of the aortic arch. (ii) An indentation in the lateral border of the descending thoracic aorta just below the aortic knob. This corresponds to the kinking of the aortic isthmus. (iii). An abnormally large aortic knob passing unusually far superiorly and laterally. This is due to elongation of the aortic arch, and is accentuated by degenerative vascular changes in old age.

The diagnosis can usually be made in lateral or left anterior oblique views. In these the kinking of the aorta is usually evident, if the existence of this condition is kept in mind. Fluoroscopy may be helpful, as in some, but not all, cases expansile pulsation may be identifiable in the abnormal shadow. X-ray examination with barium swallow will often show an indentation in the left side of the œsophagus posteriorly, produced by the kinked isthmus, whereas the anterior indentation on the left side of the œsophagus frequently seen in normal cases due to the aortic knob may be absent or diminished.

Sometimes laminagraphy in the lateral or left anterior oblique position may be required for diagnosis. In the occasional case in which there is still uncertainty, aortic opacification by venous angiocardiography or retrograde aortography is indicated.

Differential Diagnosis.

Coarctation of the Aorata.

In about one-third of cases of coarctation of the aorta an indentation is seen below the aortic knob, which duplicates that seen in aortic kinking. If rib notching is present—and this is seen in 75% of patients who have coarctation of the arota and are over two years of age—the diagnosis can be made from the postero-anterior film of the chest. An impression on the posterior, left border of the œsophagus below the aortic knob may be seen in both conditions and does not help in their differentiation. In the absence of rib notching the diagnosis of coarctation must be made clinically, and in the unusual case in which this is not possible, aortic opacification may be helpful.

Mediastinal Tumour.

It may be impossible to distinguish with confidence expansile pulsation from transmitted pulsation at fluoroscopic examination. However, by turning the patient into the left anterior oblique position and taking films in this and in the lateral position, the continuous contour of the kinked aorta can usually be identified, and it will be seen that the "mass" represents the aortic knob and the descending portion of the aortic arch, while the aortic isthmus accounts for the shadow taken to be the aortic knob on the initial postero-anterior film of the chest. Occasionally laminagraphy in the left anterior oblique position may be required to make the diagnosis.

Aneurysm of the Aortic Arch.

The diagnosis of this condition is made by the demonstration of localized aortic widening. In aortic kinking there is tortuosity, but no localized dilatation, of the aorta. Laminagraphy may be helpful, and in the occasional difficult case, aortic opacification is the definitive procedure.

Patent Ductus Arteriosus.

As a rule, this condition does not give rise to any confusing aortic deformity. Infrequently there is dilatation of the infundibulum of the ductus, producing a convexity just below the descending part of the aortic arch. Again, oblique and lateral views, and if necessary laminagrams, would show whether the aortic arch is kinked.

Discussion.

The condition of aortic kinking was originally called pseudo-coarctation, and is frequently considered as a mild form of coarctation. The evidence to date suggests, however, that coarctation and kinking are separate entities. The ætiology of coarctation is uncertain, but it seems likely that it is a congenital maldevelopment of the aorta, probably occurring during the second month of intrauterine life—namely, a partial obliteration of the left dorsal aorta either between the fourth and sixth aortic arches or between the sixth arch and the point of fusion of the two dorsal aortas. A short ligamentum arteriosum is not a common associated feature. Aortic kinking, on the other hand, is probably due to abnormal shortening of the ligamentum arteriosum, perhaps in association with a slightly elongated pre-isthmic aorta. Minimal luminal narrowing at the site of kinking has sometimes been observed, but it is well known that this is not uncommonly found in the normal adult aorta at the isthmus.

Also, cases of kinking occur equally among the sexes, whereas coarctation is seen four times as often in males as in females. It is important to draw the line of distinction, because associated anomalies, such as biscupid aortic valves, are present quite commonly in coarctation, whereas they are infrequently seen in aortic kinking, and the life expectancy in even a mild case of coarctation is probably decreased. Aortic kinking, on the other hand, has no clinical significance, it does not influence the life expectancy and the patient must be unreservedly reassured.

Summary.

1. Aortic kinking is an uncommon congenital anomaly, comprising a medially directed buckling of the aortic isthmus. It is associated with an abnormally short ligamentum arteriosum.

2. A confusing appearance may present on the postero-anterior film of the chest. The diagnosis can usually be made on the left anterior oblique and lateral films of the chest, but at times fluoroscopy and laminagraphy may be required. Familiarity with the radiological characteristics of this condition usually eliminates the need for angiocardiography and retrograde thoracic aortography.

3. The only physical sign which may be found is a systolic murmur. There are no symptoms, the patient requires no treatment and the life expectancy is not affected.

4. Three cases are reported and illustrated.

Acknowledgement.

I am indebted to the staff of the Royal Melbourne Hospital for permission to use Case I.

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THE PLAIN FILM SURVEY OF THE ABDOMEN.[1]

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WHEN preparing this paper, I came across the following statement made in 1902 by Sir James McKenzie Davidson: "The abdomen is very difficult to examine by X-rays. With the exception of gaseous distension of the stomach, renal calculi and metallic foreign bodies, little information can be obtained."

This is no longer true. Although interpretation may still be difficult, a great deal of valuable information may be obtained by this relatively simple and cheap diagnostic method.

In a routine survey of the abdomen, one studies the outline of the kidneys, liver and spleen, the psoas muscles, the flanks and the diaphragm. Any calcification present should be noted and the gas patterns studied.

The films to be taken will be decided after reference to the clinical notes, or after the taking of a preliminary supine view. In the case of an acute abdominal condition, upright and/or lateral recumbent views are necessary to distinguish the position of gas and to visualize fluid levels. Oblique views may be necessary to demonstrate ureteric calculi if they overlie bone. A postero-anterior view of the chest is important, not only in excluding a chest lesion with symptoms referred to the abdomen, but also because gas beneath the diaphragm is more clearly seen on the film with the shorter chest exposure.

I shall discuss pathological findings under the following headings: calcification, soft-tissue tumours, collections of fluid, abnormal gas patterns, traumatic lesions, foreign bodies.

Calcification.

One commonly sees calcification in the costal cartilages and mesenteric glands, and in phleboliths in the pelvis.

Calcification may be present in the vessel walls, and aneurysms can be identified by this means.

Renal and biliary calculi, when calcified, usually have a characteristic appearance; but the diagnosis may have to be confirmed by special investigation.

Calcification may be present in the parenchymatous organs—e.g., a tuberculous kidney, the suprarenal glands, a chronically inflamed pancreas.

Tumours such as a fibromyoma or hydatid cyst may be calcified. The presence of teeth is diagnostic of a teratoma.

Soft-Tissue Tumours.

Soft-tissue tumours (see Figure I) may be evident as an area of homogeneous density displacing bowel and other structures. Usually the pathology of the tumour cannot be determined from the radiological findings, although help may be gained from the situation of the tumour. For example, a large soft-tissue tumour arising out of the pelvis makes one suspect an ovarian cyst.

Enlargement of the spleen may be measured by a line drawn across its width 2 cm. above the lowest point. Normally this should not exceed 3·5 cm.

[1] Read at a meeting of the Section of Radiology and Radiotherapy, Australasian Medical Congress (B.M.A.), Tenth Session, Hobart, March 1 to 7, 1958.

Collections of Fluid.

Fluid in the abdomen is best considered as (*a*) fluid within the lumen of the bowel and (*b*) fluid in the peritoneal cavity.

Fluid within the lumen of the bowel is seen in cases of obstruction, and I shall discuss this later when considering abnormal collections of gas in the bowel.

Free fluid in the peritoneal cavity may most easily be detected in the pelvis. Therefore one should place the patient in a sitting-up position before X-ray examination. The fluid may then be seen as a homogeneous shadow, often the shape of a half-moon, and best outlined when the upper part of the pelvis is occupied with gas-filled bowel loops. Such a collection would correspond to about 300 to 400 c.cm. When present in greater amounts, the fluid may extend along the borders of the flanks and in between the intestinal loops as comb-like offshoots.

In massive ascites a diffusely dense area may be present, and the abdominal structures may be poorly visualized. The right border of the liver should then be closely observed, as the liver is pushed medially and a broad band is disclosed between the denser liver parenchyma and the lateral thoracic wall. This sign is often helpful in distinguishing between ascites and ovarian cyst.

Abnormal Gas Patterns.

The study of the gas patterns is important in acute abdominal conditions and in the examination of children. In children congenital abnormalities such as atresia of the bowel or imperforate anus may be diagnosed (see Figures II and III).

Normally, in the adult, the small intestine does not contain gas; but in cases of small-bowel obstruction, gas-distended bowel loops are seen arranged in a step-ladder fashion, containing fluid levels in the upright view (see Figure IV). The fluid is not only that taken by mouth, but the added secretion of the digestive juices. In 24 hours, eight or nine litres of fluid pass through the bowel, comprising five or six litres of digestive juices and two or three litres of fluid taken by mouth. The degree of gas distension of the bowel is usually an index of the severity of the obstruction, and also indicates that the obstruction is situated low down. Fluid levels may be present in three to six hours, but are not often seen before 10 or 12 hours. If they are not evident in 24 hours, the diagnosis of obstruction is extremely unlikely.

Large-bowel obstruction is characterized by a distended bowel shadow extending to the periphery, and often the point of obstruction may be indicated by the deflated bowel distal to the lesion. The small bowel may also be distended and contain fluid levels. One should note the distance between the bowel loops. Normally they are separated by a distance of up to 3 mm. Above that one suspects peritonitis.

Paralytic ileus usually involves both the small and large bowel, and fluid levels are less evident.

In volvulus of the sigmoid colon, one sees an enormously distended sigmoid loop. A characteristic feature is the converging of three lines to the point of torsion.

Volvulus of the caecum may occur, and a greatly distended caecum may be seen, displaced upwards and to the left.

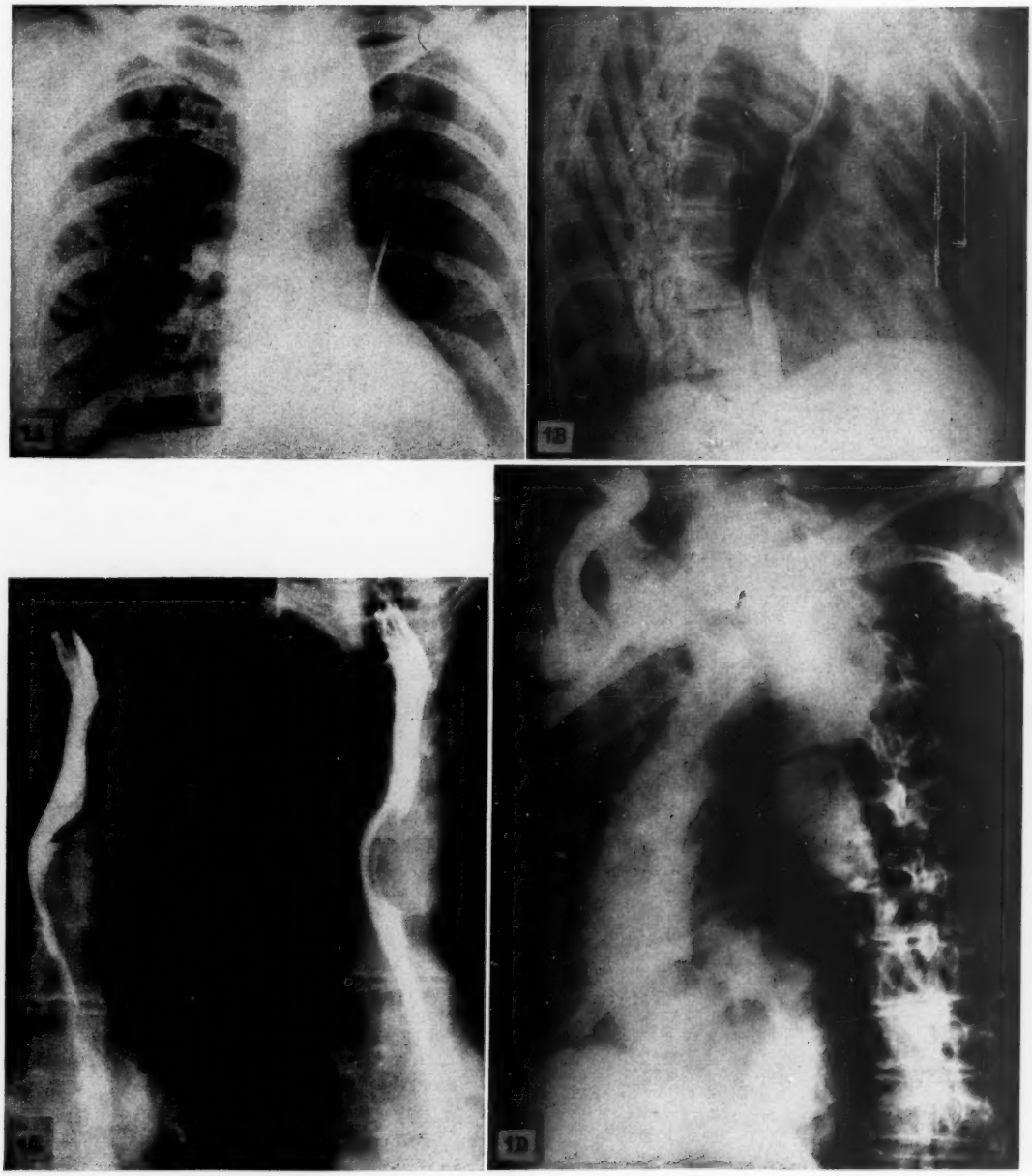
In cases of a ruptured hollow viscus, a film in the upright or lateral recumbent position will show a collection of gas beneath the diaphragm or costal margin (see Figure V).

Gas may be present in the biliary tree as the result of a fistulous perforation into the bowel (Figure VI).

Elevation of the diaphragm, gas beneath it, an increased haziness due to fluid beneath the diaphragm or above it and patchy atelectasis of the base of the lung are radiographic evidence of a subphrenic abscess.

In a case of acute pancreatitis, there may be duodenal ileus and distension of the proximal part of the transverse colon.

ILLUSTRATIONS TO THE ARTICLE BY PAUL ROSS.



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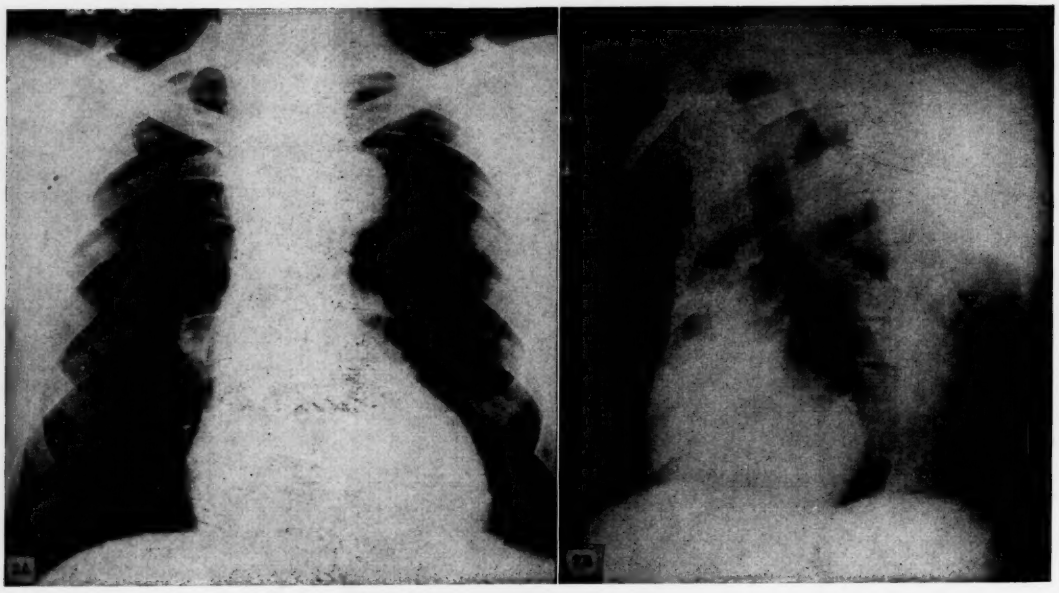

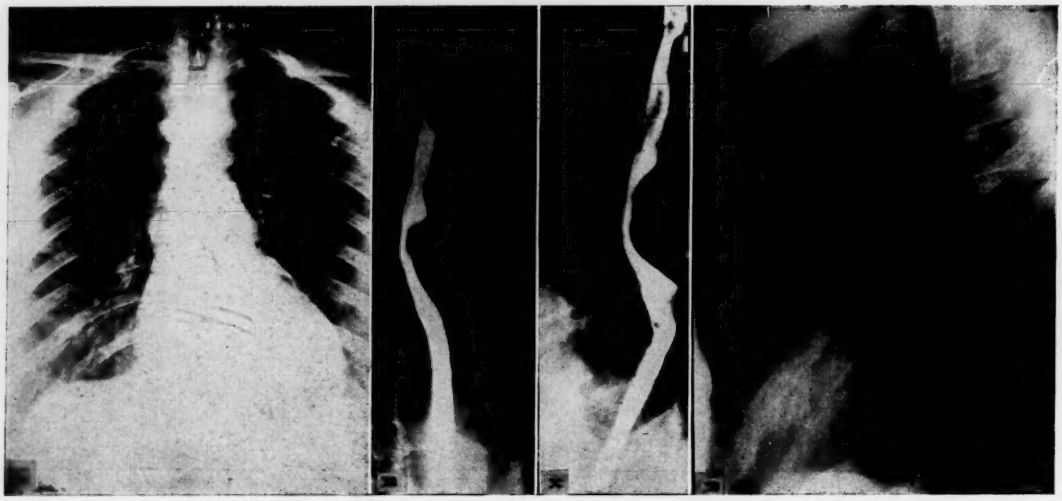

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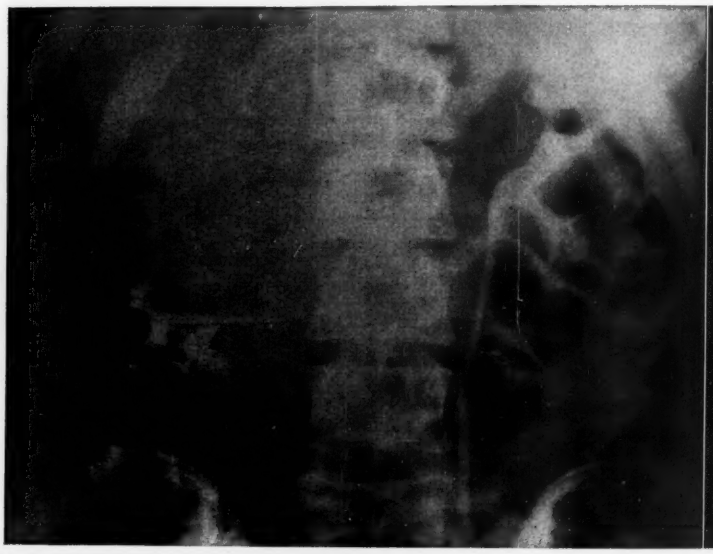

FIGURE I.
A large retroperitoneal sarcoma displaces the kidney downward.

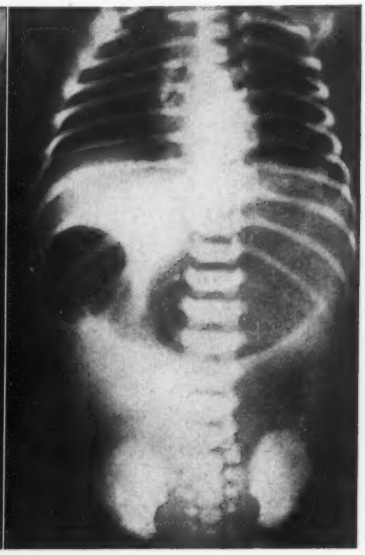

FIGURE II.
The gas-filled stomach and duodenum seen in duodenal atresia.

FIGURE III.
The gas-filled rectum does not extend to a metallic button placed in the anal dimple.

FIGURE IV.
Gas-filled loops in small-bowel obstruction.

ILLUSTRATIONS TO THE ARTICLE BY I. PATRICIA WAUGH.

FIGURE V.
Gas beneath the anterior abdominal wall and ribs seen in the lateral recumbent view.

FIGURE VI.
The biliary tree is outlined by gas.

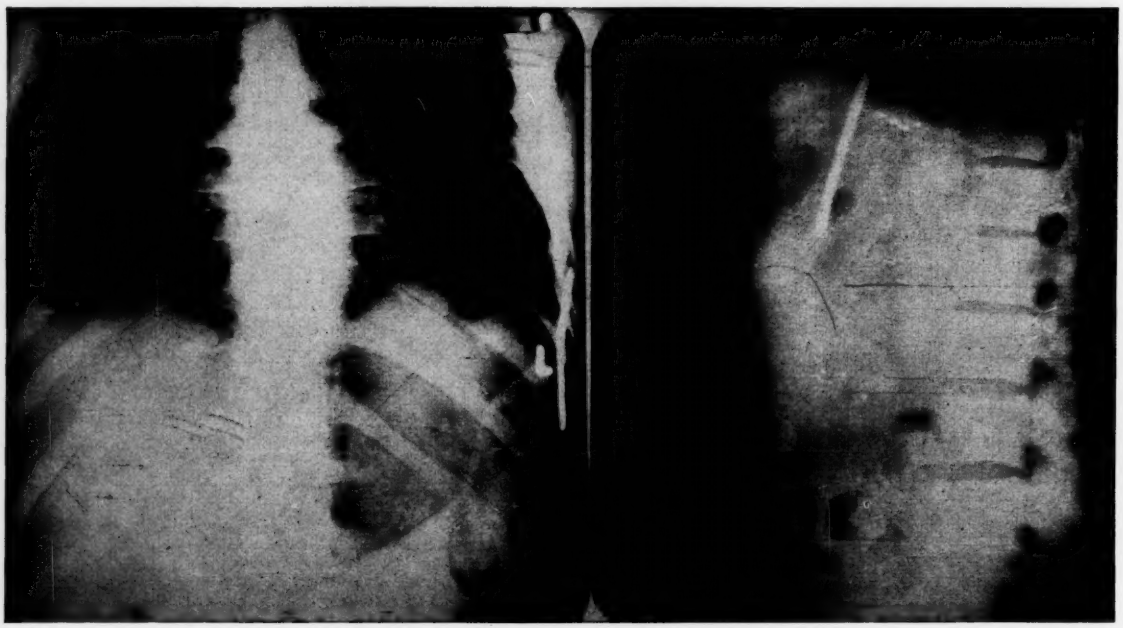

FIGURE VII.
A long nail under the left hemidiaphragm, after perforation of the perineum by a nail hurled up by a rotary lawn-mower.

Traumatic Lesions.

When patients with traumatic injuries of the abdomen are referred, one looks for signs of rupture of the spleen, liver, kidney or bowel. A rupture of the spleen will produce enlargement of this organ, elevation and fixation of the diaphragm and displacement of the stomach and splenic flexure. Collections of blood should be looked for in the flank. Similar findings may be detected in cases of rupture of the liver. The contour of the diaphragm may be changed, owing to the presence of blood clots, and the highest point may be more lateral than usual.

An extraperitoneal hæmatoma, from rupture of the kidney, may be evident as a broad band along the flank, which does not alter its position in views taken in the lateral recumbent position.

Foreign Bodies.

Opaque foreign bodies usually present no problem. One should localize them, so that their progress through the bowel may be studied or their position within the peritoneal cavity may be accurately decided (see Figure VII).

Conclusion.

There are limitations to the study of the plain X-ray film of the abdomen. Most frequently the taking of the plain film is a preliminary examination, and on the findings further investigation by opaque media may be indicated. In some cases the findings are diagnostic; in others—e.g., in acute abdominal emergencies—the taking of the plain film is the only radiological investigation permitted because of the patient's condition. At all times close cooperation between the radiologist and clinician is essential. A personal discussion helps towards a better understanding of the mutual problems. Only too often that personal interview is sought by the surgeon when the operative findings have not corresponded to the radiological findings; but, instead of interpreting his remarks as criticisms, we should be glad to further our knowledge in the interpretation of the plain X-ray film of the abdomen.

DYSPEPSIA.[1]

By STANLEY GOULSTON,
Sydney.

THE bard was well aware of the vagaries of the alimentary canal. Gaunt says to Richard II:

> Things sweet to taste prove in digestion sour.

While Macbeth counsels his lady:

> Now good digestion wait on appetite and health on both.

Even in the realm of politics the stomach knew what party to follow. Samuel Butler advises:

> The healthy stomach is nothing if not conservative. Few radicles have good digestions.

Sydney Smith in his letter to Arthur Kingslake writes:

> I am convinced digestion is the great secret of life.

He was at one with the Chinese philosophers.

Surely dyspepsia is the commonest of all ailments, and may be described simply as symptoms developing during the digestion of food. To the layman, dyspepsia may mean actual pain, retrosternal tightness, heartburn and regurgitation of fluid into the mouth, upper abdominal discomfort, wind, or even loose motions. The term is meaningless historically and the true meaning of what the patient suffers has to be obtained.

The causes of dyspepsia are legion, and an exhaustive review will not be attempted. Rather, certain interesting causes of dyspepsia will be reviewed.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on December 11, 1958.

Nervous Dyspepsia.

Emotional factors commonly are productive of abdominal discomfort and sometimes may result in anorexia nervosa, inability to swallow or repeated vomiting. There are two classes of patients in this group of particular interest.

1. The patient who is a chronic belcher. This interesting patient often has a neurosis. Excessive air is swallowed at meal times, producing a sense of fullness in the upper part of the abdomen and, in an attempt to belch, more air is swallowed. This air may or may not enter the stomach and is often belched up again with a loud report. This can be repeated indefinitely. However, one has seen similar marked chronic belching initiated by an œsophageal hiatus hernia when the distended gastric pouch above the diaphragm initiates the air swallowing, and by a duodenal ulcer when flatulence is initiated by gastric distension associated with pylorospasm. One has also seen gross belching associated with chronic pyloric obstruction secondary to ulcer, and this may be suspected if the gas has a distinctly unpleasant odour. So the chronic belcher may be neurotic but he may have an underlying organic disease. You will not have failed to notice my lack of mention of gall-bladder disease as a cause of chronic belching. In my view it is an uncommon symptom in gall-bladder disease in the absence of an associated neurosis.

2. The patient with a windy abdomen. Loud reports and movement of gas in the abdomen frequently alarm the patient, who often becomes aware of these in bed. Distension or fullness may occur, with generalized abdominal discomfort and even cramping pain. Constipation is a feature, and at times there are periods of looseness of motions with or without mucus. If the gas distends the hepatic flexure, discomfort in the right upper quadrant and the right side of the chest and back simulates gall-bladder disease and this organ is not uncommonly removed. If the splenic flexure is distended, similar discomfort is felt in the left upper quadrant and into the left side of the chest over the precordium, giving rise to fears of heart disease and even inducing paroxysmal tachycardia. Machella introduced the terms hepatic and splenic flexure syndromes. This condition of spastic or irritable colon is a common abdominal disorder in my experience and may mimic most alimentary tract complaints. The symptoms are essentially episodic and the patient remains fit and well nourished. Some are benefited by spasmolytic and anticholinergic drugs, others by simple reassurance and sedation. Spastic colon and air swallowing may truly represent forms of nervous dyspepsia, but the symptoms produced by these entities may also clearly be those of organic disease.

Specific Entities that may be Labelled Nervous Dyspepsia in Error.

Œsophageal Hiatus Hernia.

This common condition is often symptomless. Symptoms can result from distension of the sac above the diaphragm, producing fullness or pain substernally, or from an associated incompetent cardiac sphincter, allowing reflux œsophagitis and œsophageal dysrhythmia. Heartburn, water brash, flatulence, dysphagia, food hold-up at the lower sternum and nocturnal lower sternal pain may result. These symptoms may make their appearance for the first time in the fifties or sixties, but we are familiar with an association in younger people with duodenal ulcers. Indeed, the symptoms of œsophageal reflux may be the initial complaint made by the patient with duodenal ulceration, the symptoms being relieved when the ulcer is treated and healed. It is our experience at the Royal Prince Alfred Hospital, Sydney, that the great majority of patients with œsophageal hiatus hernia can best be treated conservatively by weight reduction, posturing at night, diet, alkalis and anticholinergics. Surgery is reserved for complications.

Atkinson *et alii* (1957) found a good correlation between clinical evidence of reflux and graphic evidence that the cardiac sphincter was poorly developed. This helps to explain why patients may have reflux without any hernia

and why a large hernia may not be associated with reflux. If there is reflux and a poor sphincter, repair of the hernia will not relieve the symptoms unless, by bringing the sphincter below the diaphragm, it is reinforced by by abdominal pressure. Even so, probably one-quarter of the repaired herniæ recur within three years.

Peptic Ulceration.

Peptic ulceration is often misdiagnosed as nervous dyspepsia because of the vagaries of its presentation. Pain is not always essential and it may be entirely replaced in a rhythmic manner by nausea, seen particularly in the so-called pyloric channel ulcer, but one has also noted it in duodenal ulcer and even gastric ulcer high on the lesser curve. Pain, too, may occur in unlikely places. We have seen two patients this year with long-standing uncomplicated duodenal ulceration, whose pain had always been in the left upper quadrant of the abdomen. The pain may occur only in the chest or up under the ribs or in the back and, when penetrating, in the right iliac fossa. Ulcers in the second part of the duodenum are frequently missed, and we have recently seen a man with a stomal ulcer that went undiagnosed for many months because the pain was situated in the left renal angle and in the left testicle.

Chronic pyloric obstruction secondary to ulcer may be extremely insidious in its presentation and can remain undiagnosed until the stomach is enormously dilated. Even at this stage the patient may have maintained his weight by drinking several pints of milk daily and may not mention the twice-weekly copious vomit. Less commonly seen is the interesting gastric dilatation with splashing, which is not associated with organic disease or electrolyte disturbance and which has a poorly understood neurogenic origin. A young patient seen this year had not benefited by one surgical procedure and the dilatation slowly resolved without a gastroenterostomy. One would make an earnest plea for conservative management of gastric ulcer in the young adult. It is quite remarkable what healing can occur with long periods of horizontal bed rest and abundant food. I also feel that there is a distinct place for gastro-enterostomy and vagotomy if operation has to be undertaken for duodenal ulceration on patients in the younger age group.

Gastritis.

The advent of the Wood gastric biopsy instrument and studies of biopsy specimens have helped to put the condition of chronic gastritis on a firmer clinical footing. Although the essential causes are unknown, long-continued irritation associated with heavy aspirin intake, heavy smoking and drinking, highly seasoned food, and secretion swallowed from chronic chest disease plays a major role in continuing the mucosal damage.

Such patients complain of fullness and discomfort after meals, diminished appetite and nausea, and an intolerance of stimulating food and drink. Their management is extremely difficult. They are helped by a bland diet, the avoidance of alcohol, tobacco, insoluble aspirin, condiments and the giving of alkalis. At times, for reasons unknown, they improve with acid therapy and may be benefited by penicillin given orally. It should be remembered also that vitamin B_{12} deficiency is associated with gastric atrophy and often presents with dyspepsia, anorexia and diarrhœa. Antral gastritis represents a localized form of gastritis with a clinical and radiological picture indistinguishable from gastric carcinoma.

Steatorrhœa.

Malabsorption states producing steatorrhœa and pancreatic lesions may cause episodes of abdominal discomfort, gurgling, distension and looseness; these states often go unrecognized for many years until anæmia or weight loss or cramps bring them to medical attention.

Liver.

The liver is not a common site for dyspepsia, but this may occur with hepatitis, glandular fever and fatty infiltration of the organ, particularly in association with alcohol and diabetes. Chronic amœbiasis should always be thought of in obscure dyspepsia, and one has seen an enlarging hydatid cyst of the liver producing severe dyspepsia with nausea and vomiting.

Malignant Disease.

Carcinoma of the stomach defies all efforts to diagnose it early, but any form of dyspepsia occurring for the first time in the middle-aged subject, or persistent diminution in appetite, must produce suspicion. Carcinoma of the ascending colon may be misdiagnosed as duodenal ulcer because of right upper quadrant pain, but it has a colicky character. Carcinoma of the pancreas without icterus is most difficult to diagnose. Back pain and appetite loss are very common symptoms. Even at laparotomy the surgeon may not be able to distinguish between chronic pancreatitis and carcinoma of the body. Carcinoma of the caecum is a well-known diagnostic trap.

Vascular Disease.

Retrosternal or epigastric pain, or tightness after meals, so often described as indigestion by the patient, may be a manifestation of ischæmic heart disease. Recently, intestinal angina has been redescribed, arising from ischæmia of the intestine as a prodromal symptom of acute mesenteric occlusion. This consists of generalized cramping abdominal pain occurring one-half to two hours after meals and persisting for one to three hours. Aerophagy of effort has been reported — an association of gross belching and tightness in the chest due to myocardial ischæmia.

Migraine is a common cause of dyspepsia. Nausea and vomiting may be prominent symptoms and headache minimal. It is often difficult to assure such patients, and often their surgeon, that their gall-bladder or liver is not the cause of the trouble. At other times abdominal pain or discomfort may be the aura heralding the attack and preceding headache. On rare occasions of true abdominal migraine pain may be the outstanding feature.

Iatrogenic Disease (Drugs).

Most drugs if taken long enough and in sufficient quantity will cause dyspepsia. In our experience aspirin in its various guises is a common offender. Other important examples which should be mentioned are the broad-spectrum antibiotics, digitalis, iron preparations given orally (although recent evidence suggests that this is not valid), "Butazolidin", PAS and steroids.

Some Uncommon Causes of Dyspepsia.

Visceroptosis is not a valid cause for dyspepsia, but I have seen a patient with such severe cascading of the stomach (cup and spill deformity) that after each meal he had to lie on his left side to empty the upper pouch and relieve his dyspepsia. Very large duodenal diverticula may cause pressure obstruction, as may an annular pancreas. We have seen dyspepsia with obstructive features in Crohn's disease and endometriosis of the small bowel. Pain of a non-specific nature may be seen in periarteritis nodosa, porphyria, hypercalcæmia and tabes dorsalis.

This discursive talk was meant to emphasize some of the causes of so-called nervous dyspepsia. We should aim to be as Milton would have us in his "Paradise Lost":

> His sleep was aery light from pure digestion bred.

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DYSPEPSIA.[1]

By J. M. YEATES,
Sydney.

DYSPEPSIA has been chosen for discussion tonight between physician and surgeon, because it is a subject, *par excellence*, in which interest is mutual, and problems are many. The term, itself, is rather vague, but shall be regarded as signifying pain or discomfort during the absorption of food. Considering the length and complexity of the human gut, it is remarkable that this process is accomplished with such ease by so many. The appalling incidence of dental caries in the young Australian makes the miracle greater.

In reviewing some surgical aspects of the subject, I propose to pass down the alimentary tract, discussing briefly what surgery has to offer, and where it should be avoided. No attempt will be made to cover completely such a large field.

Cardiospasm is a fairly common condition, often responding to medical treatment (including dilatation), but sometimes requiring the surgeon's aid. Heller's operation, first performed in 1913, still holds pride of place. It is more easily done via the thorax. The incision should extend through the muscle coats of the lower three inches of the œsophagus, and through the proximal inch of the stomach, allowing the mucosa to bulge freely. The results are good, but some burning may occur from slight reflux.

Carcinoma of the œsophagus may be excised successfully provided that the diagnosis is made early enough. Replacement is performed by bringing the stomach up into the chest. This formidable operation has been made feasible by advances in anæsthesia and resuscitation, and by the use of antibiotics. The main problem is the lateness of diagnosis, due to the lack of symptoms at an early stage.

Hiatus hernia is now well recognized as a cause of dyspepsia. Suitable X-ray studies permit accuracy in diagnosis. Difficulty arises more in assessing to what extent the symptoms are due to the hernia, or to coexistent disease, especially of the gall bladder and duodenum. Laparotomy may be needed to complete the assessment. The indications for surgery are by no means clear cut. Mild symptoms in the older obese patient are treated medically. Reflux of acid, with severe œsophagitis, calls for operation. This should be performed before serious organic changes have occurred in the lower part of the œsophagus. The abdominal approach, as used by the pioneers in this field, has the great advantage of permitting inspection of the viscera of the upper part of the abdomen. But it is now accepted that the thoracic aproach gives a better view, and hence a more certain repair. Where coexistent disease in the abdomen seems to be the major element of a complex condition, it is wiser to treat this first, and then review the situation.

Carcinoma of the stomach is usually treated by gastrectomy for the few patients whose lesions are yet operable. There are a few surgeons who believe that these unfortunate patients are better without operation. We are certainly united in our awareness of the remarkable extent of the disease, in relation to mild symptoms. In my view, operation should be performed in all but the hopeless cases. It puts the diagnosis beyond all doubt, satisfies the patient and his family, sometimes relieves distressing symptoms, and occasionally produces a clinical cure for quite a few years. After successful resection, there is much to be said for the "second look" operation, which is at least more realistic than the beguiling six-monthly clinical check, usually regarded as adequate. It was recently my pleasure to find no evidence of cancer some 14 months after a gastrectomy (performed by a senior colleague).

Chronic gastric ulcer nowadays seems to be more common in young women in their twenties. Headache powders may be a factor. One young woman with the largest gastric ulcer I have seen (it was easily palpable) admitted to taking no less than 10 packets daily of a popular headache powder. She did not suffer from headaches, but took the powders during hourly breaks in her monotonous factory work, possibly because of the lift from caffeine. Persistent gastric ulcers are best treated by gastrectomy, preferably after gastroscopic confirmation of their resistance to approved medical treatment. My preference is for the Billroth I procedure, which is easier, more physiological, and freer from those distressing symptoms prone to bedevil the Pólya patient.

Chronic duodenal ulcer presents more problems, as regards the diagnosis, the indications for operation and the type of operation. Acute nausea and morning vomiting may be early symptoms, even with little or no pain. Such patients are apt to be promptly awarded the label of alcoholic gastritis, the moment they mention morning vomiting. We tend to rely excessively on the radiologist, who is least likely to define the ulcer when it is most curable. Are there any serious objections to a therapeutic trial before, rather than after, many investigations, in suitable patients? It is agreed that failed medical treatment is the indication for surgery, but here the agreement often ends. One would imagine that a ban on smoking and alcohol would be part of the medical régime. Yet patients are sometimes referred for gastrectomy whose stained fingers proclaim that their divorce from my lady is far from absolute. Many such patients state that their doctors seemed complacent; others that they raised only mild objections. The same sentiments apply, in a lesser degree, to the taking of alcohol. The Australian habit of swilling icy beer, in quick time, on an empty stomach, may soothe the drinker, but scarcely his gastric mucosa. It seems a trifle reckless to be prepared to part with one's stomach before parting with nicotine and alcohol, seductive though they may be.

Most forms of alkalis are tried *seriatim*, with the exception of the oldest of all—bismuth carbonate. Given in chemist-ringing-up doses of 10 grammes thrice daily, relief is often dramatic and occasionally lasting. This treatment does not cause constipation, nor are motions altered in colour appreciably.

For many years now, the Pólya type of gastrectomy has been the routine in the surgery of duodenal ulcer. The results are often excellent. The patient is particularly grateful for the total and permanent abolition of the gnawing pain, which he has perhaps endured for a quarter of a century. Freed from this, he may be aware of some brand-new symptoms. Usually he is content with the exchange. Excessive thinness is his most likely concern. But he need not be on a diet, and may smoke and drink in moderation. The risk of jejunal ulceration is not so great as to warrant those too-drastic excisions of a decade ago, which left the patient a grey wraith. As Ogilvie has said, somewhat ambiguously, a man should be able to hold a pint. Despite the good results of this operation, thoughtful surgeons are aware that it is a physiological outrage, and have striven to supersede it. An alternative, which is slowly gaining adherents, is the combination of two well-known operations—vagotomy and gastrojejunostomy (or more recently, pyloroplasty). This procedure has been severely criticized on the grounds that two operations which are individually bad, can scarcely combine to make one good. Accepted advantages are that the mortality rate is virtually nil (gastrectomy, 5%), the patient may gain weight, and he retains that precious organ, his stomach. At least it is a useful alternative in the young, the old, the feeble, and possibly the discriminating (surgeons facing surgery for their own duodenal ulcers favour it).

The pancreas, tucked away so snugly, is apt to be forgotten. Surgeons will admit that they have little to offer those unfortunate patients who suffer the torments of relapsing pancreatitis. It is not that they have failed to grapple with the problem. On the contrary, an unduly wide range of cures is available, from nerve section (assorted) to total extirpation. In my small experience,

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on December 11, 1958.

these patients are drug addicts when they reach the surgeon. Is this the indication for operation? Lateral anastomosis of the common bile duct to the duodenum, particularly when jaundice has been present, is the operation most likely to produce relief.

The gall bladder is the main prize which the abdomen has to offer the operator who aspires to cure dyspepsia. At times, it may be removed with little damage, by one with trifling experience. This assault is aided by that perfect relaxation now available. Perhaps for these reasons there is a tendency to perform the operation on insufficient grounds. Above all, the surgeon should be satisfied that stones are present. Cholecystography has reached an astonishing degree of accuracy, and removal of the gall bladder in the face of a report of thoroughly normal findings is certain to be followed by poor results. Medical students seem to absorb the idea that flatulence and gall-bladder disease are one and the same. This common symptom is more likely to have its origin in the colon. Simple constipation may be the cause, and so explain the success of a purgative-containing pill, much favoured in the treatment of "cholecystitis". There is also the condition of irritable colon (spastic colitis), well recognized by our American colleagues, but not in British countries. This state of affairs could be due to the facetious remarks of the doctor in "San Michele", on the subject of the too-fashionable current diagnosis of "colitis". In this common functional disorder, the distal colon tends to contract excessively, causing alternating constipation and diarrhœa. Gaseous distension of the transverse colon produces an uncomfortable sensation of fullness, and perhaps colicky pain. X-ray studies with barium of the colon will often clinch the diagnosis in a most striking manner (Figure I). But even in the absence of such proof, a clinical diagnosis can be made with some assurance, the patients often being as tense in their minds as they are in their hollow viscera.

Another diagnostic pitfall is the returned soldier of the 1939 war, who is now in his forties, and complains of obscure pains in the right upper part of his abdomen. Tenderness under the ribs may suggest gall-bladder disease, especially if it is given the status of a positive Murphy's sign. But a history of severe dysentery in the Middle East, accompanied by tenderness on heavy liver percussion, may point to amœbiasis, and lead to the finding of evidence in the stools. Such a patient was recently referred for cholecystectomy. He vouchsafed the interesting information that was afraid to attend football matches, because crushing caused severe pain under his right lower ribs. He had had no less than three cholecystograms (normal); but in five stool examinations, *Entamœba histolytica* was cultured twice. There are quite a number of such cases at large, some diagnosed and some not. Medical treatment does not seem to be effective in all cases, and relapses occur. It is certain that we should be more circumspect before ravishing the virtuous gall bladder in some of these cases.

Another type of liver tenderness may simulate gall-bladder disease. At operation, a long, lean, right lobe of the liver is found, often showing whitish areas on the surface, the gall bladder being green and normal. This condition occurs in thin middle-aged women, without sign of any of the usual causes of hepatitis. These patients seem to have genuine pain and tenderness, but I am not aware of the cause.

The small bowel is remarkably free from gross disease, with the exception of regional ileitis. The diagnosis is often missed. As regards treatment, resection and short-circuit are used, the former when the disease is localized.

Chronic appendicitis has at times been considered a cause for dyspepsia. It is true that an increase in appetite and weight may follow appendicectomy, particularly in growing children. In such cases, there are always local symptoms and signs, and the appendix shows genuine evidence of former or current inflammation. I do not believe that dyspepsia is likely to be cured by removal of a near-normal appendix, which has produced no local symptoms. It surprises me that so much time and money is spent in having an X-ray examination of the appendix, particularly in children. It may help to know the anatomical situation, but other information is often of a conjectural nature. In children it is better to remove the appendix forthwith, when the clinical diagnosis can reasonably be made. In adults, there is always the chance that the real cause of the trouble will emerge (carcinoma or diverticulitis). For the same reason, it is prudent to perform an elective appendicectomy via a paramedian incision in patients over 30 years of age. Carcinoma of the caecum may be causing the symptoms. Again carcinoma of the sigmoid colon, with incipient obstruction, causes distension of the thin-walled caecum, which is likely to be tender. In both cases an X-ray examination with a barium enema, even in skilled hands, may fail to show the lesion.

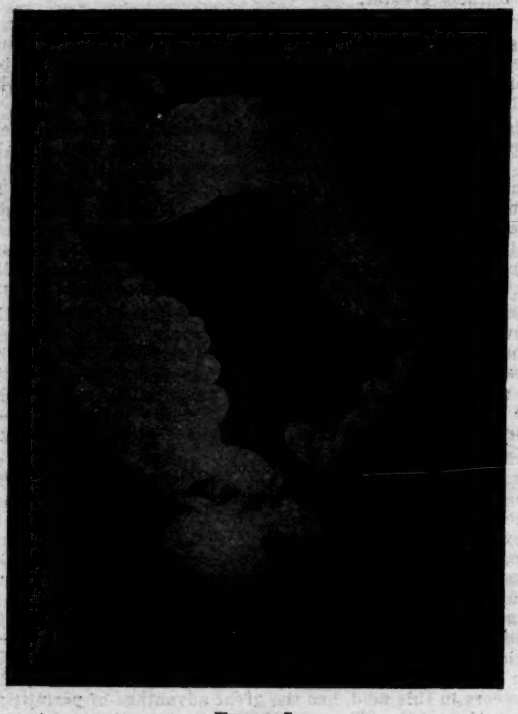


FIGURE I.

Skiagram showing spasm of the distal part of the colon, a condition which may lead to the erroneous diagnosis of cholecystitis.

Time will not permit discussion at length of exploratory laparotomy. It has much to recommend it in doubtful cases. The tendency today is towards elaborate investigation, especially in teaching hospitals. Despite this, it is surprising how often laparotomy, when finally employed, will reveal a pathological condition which was not included in the large differential diagnosis.

Adhesions are painfully familiar, but there has been little advance in our knowledge of the subject. Rough incompetent surgery and local infection are factors, but it is clear that certain people have an innate tendency to this state. An appendicectomy is commonly the beginning of the sad story. Later a long train of symptoms develop, and some of these may be of a dyspeptic nature. These patients tend to dwell on their complaints, perhaps unduly, so that appraisal can be most difficult. Usually the abdomen shows the signs of some four or five engagements with the surgeon. Operation should be avoided unless severe intestinal obstruction renders it imperative, and then only after intubation has failed. One possible exception to this rule is the sensible patient who has persistent localized pain, always in the same spot, and

aggravated by some stretching movement. In such a patient there is a good chance of a reasonably localized mass of scar tissue being found, which may be removed, and the raw surfaces covered with omentum. The most favourable finding is one narrow avascular band, which may have been causing intermittent partial obstruction; the worst finding is mutual adhesion of every coil of the small bowel. Death may follow a major attempt at separation. Rarely, a short-circuit may be unavoidable.

Special mention should be made of adhesions following cholecystectomy. The most common finding is that the duodenum is firmly stuck to the gall-bladder fossa. In some patients this gives rise to no symptoms; in others, a separation may relieve severe localized pain. All text-books have beautiful diagrams of the peritoneum snugly sutured over the gall-bladder fossa. But in the very fibrous gall bladder there may be no peritoneum available. In such cases omentum is an excellent substitute. When the dissection of the gall bladder is really difficult, and the plane of cleavage obliterated, it is better to leave a little gall bladder than to make a divot in the liver. Sometimes a thick band will be found connecting the anterior surface of the liver with the anterior abdominal wall. In this variety the patient tends to complain of aggravation when the arm is raised up to the top shelf. It is possible that the cause may be the pinching of the liver between a retractor and the inner surface of a rib.

Migrainous headaches sometimes accompany dyspeptic symptoms, and the patient may omit to inform the surgeon. Such patients sometimes receive the "gall-bladder label", and they cherish the hope (sometimes shared by their doctors) that removal of that organ will cure them. Whilst there is no reason why a person who suffers from headaches should not have gall stones, in practice such patients do not, and they are very bad subjects for operation.

Psychoneurosis is said to be the most widespread ailment of this age. My first experience of this condition came during the war. Young soldiers were referred for appendicectomy because of a variety of aches and pains in their abdomens. "Butterflies in the stomach" was the most common complaint. The majority of these lads had never been near the front line. No doubt they failed to make the adjustment to such a rude uprooting from their home comfort and security. In civilian life there are just as many difficult adjustments to be made, so that recruits to the ranks of the psychoneurotic are steady, and some find their way to the surgeon's door. The usual complaint is of manifold visceral aches, their multiplicity pointing to the true state of affairs. The diagnosis tends to be confirmed by the finding of tremulous hands, with clammy skin, and perhaps closely-bitten nails. Occasionally, the surgeon can uncover the cause of the emotional conflict. More often there is no evident clue, and it is not likely to be found by laparotomy.

A RATIONAL TREATMENT OF CONGENITAL TALIPES EQUINO-VARUS.

By J. E. CRITCHLEY,
Melbourne.

THE variation in the treatment of congenital talipes equino-varus from place to place and from time to time is an indication that unsatisfactory results have been obtained. In all centres where large numbers of cases of talipes equino-varus are seen, there has been a proportion of failures, whatever the method of treatment. These failures have not always been due to a lack of skill or enthusiasm on the part of the surgeons, but rather to a weakness in the method used. All such treatments have had one thing in common — at some stage in the treatment force has been used to manipulate the foot.

This use of force is undoubtedly the principal cause of the failures, and gentle manipulation, as described by Hiram C. Kite, is the only method which seems to be successful always, no matter the age of the child. On a recent visit to Dr. Kite's hospital in Atlanta, which is a major centre of club-foot treatment in America, I saw a very large number of cases of club foot, none of which could be considered as unsatisfactory.

The treatment is essentially gentle correction of the deformity and maintenance of position by plaster of Paris. The correction must be so gentle that it causes no pain or muscle spasm. Any manipulation which causes pain must cause damage; therefore no anæsthetic should be used.

FIGURE I.
The position of the surgeon's hands.

The correction of talipes equino-varus by repeated gentle manipulation is achieved by the stretching of any tight structure in the foot. Correction by forcible manipulation is attended, not by stretching, but by the tearing of soft tissues and even, on occasion, of bone. This tear is repaired, as always, by fibrous tissue, which, becoming scar tissue, as always, contracts. Thus the foot relapses, and the more forcible and repeated the damaging manipulations, the more scar tissue is formed; and so goes the vicious circle. The scar tissue so formed on the medial side of the foot may be

FIGURE II.
The padding applied with the extra layer over the medial and lateral sides of the foot.

extremely tough and thick, sometimes as much as three-quarters of an inch. This needs to be seen only once at operation to be convinced that such a result is to be avoided at almost any cost. The tearing can be done by the surgeon's bare hands, so it is unpleasant to think what happens when some mediæval wrench or mechanical hand is used.

Whatever the method of treating talipes equino-varus, first the forefoot deformity and then the inversion of the heel should be corrected, and only when these two deformities have been thoroughly removed should the correction of the equinus deformity be started.

The details of the plaster of Paris application are of great importance. The plaster of Paris is changed

FIGURE III.
The completed shoe.

each week by the surgeon. There are many points to be noted carefully. Poorly applied plaster of Paris makes the condition worse and more difficult to treat. A padded plaster is always used. The plaster of Paris is applied to the foot as a shoe, with the help of a trained assistant. Narrow rolls of padding and plaster of Paris, one or two inches wide, are necessary to get an accurate fit. The padding must be thin, as well as narrow, and it requires careful application. It is not put on until the surgeon is holding the foot, which he does with the index finger under the great toe and along the head and neck of the first metatarsal and the thumb on top of the toe (Figure I). The assistant applies the padding and the plaster of Paris. The padding is put on starting from the toes, and then from the lateral side to the medial side across the top of the foot. The great toe is completely covered, and the application must be firm and smooth with no billowing. Pressure may occur at two points — on the medial side of the great toe and on the lateral border of the foot, where an extra layer of padding is used (Figure II). One plaster of Paris bandage is applied

FIGURE IV.
The completed shoe.

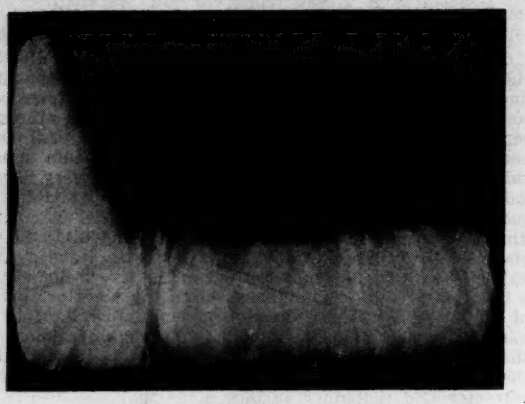


FIGURE V.
The completed plaster.

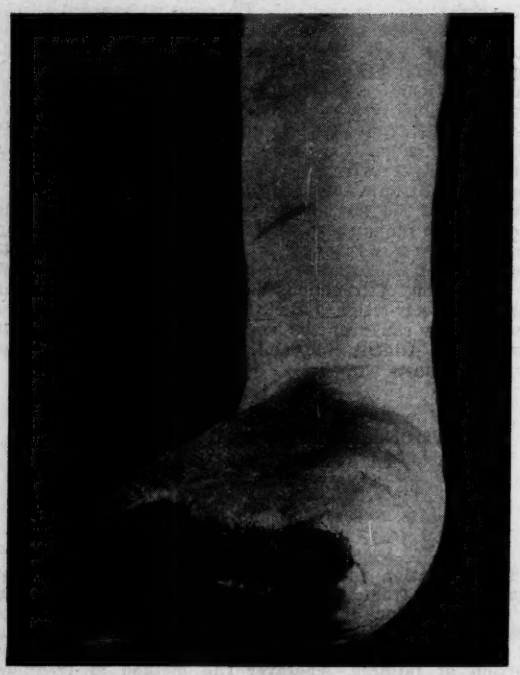


FIGURE VI.
The completed plaster.

to the forefoot and another to the hindfoot to form a "shoe". As the plaster of Paris is applied to the heel, it is folded back and forth around the back and under the heel, with careful moulding into the hollows around the tendo Achillis. The finger and thumb are now slipped out from the plaster of Paris and the cast is flattened over the toes and the forefoot adduction is corrected (Figures III and IV). When the plaster of Paris has set, the "shoe" is used to evert the heel and the cast is completed to hold the correction (Figures V and VI).

The importance of correcting the adduction and inversion before the equinus cannot be over-emphasized. If this is done, the equinus can be corrected more easily, and "boating" of the foot avoided. The navicular must be brought around from the medial side to in front of the head talus, and the os calcis must be turned laterally under the talus, so that the forefoot is in line with and in front of the hindfoot. The longitudinal axis of the talus is in line with the great toe, with the longitudinal axis of the talus and os calcis making an angle of 35°. Then the equinus is corrected by the application of the shoe to control the foot, and when this is set the whole foot is dorsiflexed at the ankle. By the use of the shoe and no dorsiflexion of the foot until the shoe has set, the "boating" deformity is avoided. In this deformity, the hind foot remains in equinus and the forefoot is dorsiflexed at the mid-tarsal joint.

Clinically, correction is not complete until the foot can be dorsiflexed in eversion. Then the foot is kept in plaster of Paris for eight weeks before freedom is allowed, after which a night splint is worn for six months.

RHINOPLASTY.

By GRAHAM HUMBY,
Sydney.

THE success of rhinoplasty depends very largely on the efficiency of the post-operative splintage. A full rhinoplasty seeks to correct in one operation the three deformities that commonly occur together—a humped or hooked bridge, too long a nose and a bulbous tip. The ideal splint is one that holds the in-fractured nasal bones

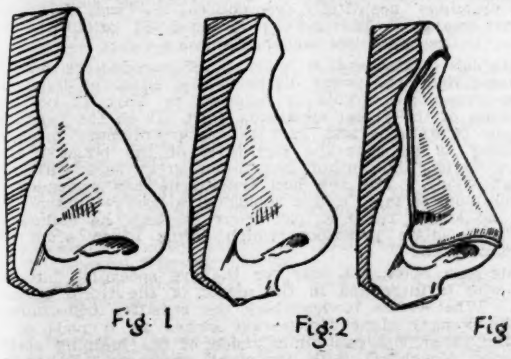


Fig. 1 Fig. 2 Fig. 3

in place, prevents hæmatoma formation under the overlying nasal skin, pulls the nasal tip and columella up against the shortened septum and compresses the moulded remains of the alar cartilages into their required shape.

Such desiderata can be achieved only by the use of a prefabricated splint accurately moulded to cover the whole of the new nose.

Procedure.

1. A plaster of Paris mould is made over the patient's nose, and from this a plaster cast is taken (Figure I).

2. This cast is then carved to the desired shape (Figure II).

3. "Ash's Soft Dental Metal", gauge 4, is moulded over the new shape, the bone handle of a small kitchen knife being used for the purpose. The metal splint is then trimmed with scissors, a tongue being left to lift the columella, and it is lined with "Elastoplast" (Figure III).

4. Immediately after the operation, the splint is fixed in position with one-inch "Elastoplast" (Figure IV). This is left undisturbed for 24 hours, and then taken off to see that all is well. It is replaced for a further 24 hours, and then left off progressively in the day time, but replaced at night for one week.

FIGURE IV.

Such a splint has the advantage over any other that it is prepared accurately on a hard plaster nose instead of being moulded onto a freshly operated upon, soft, unstable nose, and when it is fixed in position, pressure is applied evenly over the whole nose.

Incidentally, three of these plaster casts, representing the original nose, the carved nose and the post-operative nose, provide a permanent and very valuable three-dimensional record of the operation.

Reviews.

International Standards for Drinking-Water. 1958. Geneva: World Health Organization. 9¼" × 6", pp. 152. Price: 20s.

THIS publication contains the standards proposed by groups of experts in water treatment who were convened in various parts of the world to consider all problems related to water quality standards.

Of the 147 pages of text in this publication, 41 are devoted first to a discussion of the need for and purpose and scope of the proposed standards and related matters (13 pages), which is followed by a statement of the standard requirements. While the first part is no doubt technically sound, it is commonplace and is set out only on broad general lines. Perhaps this is sufficient for the present purpose, the proposed standards being described as essentially tentative; but we expected something more brilliant and illuminating.

The second part includes four sections, covering respectively bacteriological, chemical and physical, biological and radiological requirements. The "standards" are stated in the course of further discussions of the specific requirements. The statement is not always precise or unequivocal; thus, for example, the bacteriological standards depend on whether or not the water has been "treated". An earlier section defines "treatment", but it is difficult to reach any conclusion as to what combination of treatments yields a "treated" water, and what is an "untreated" water.

Also, there may be doubts as to what is intended regarding the occurrence of *Escherichia coli*. Paragraph 2.3.1 implies that a finding of this organism in the water cannot be tolerated. However, the actual standard requirements given in paragraphs 2.3.3.1/2 make no specific mention of *E. coli*, but are confined to M.P.N. limits

for coliform bacilli and might be taken as independent of the types of coliform bacilli found.

The greater part of the book is concerned with methods of testing. The introduction points out that these are "approved", not "standard" methods, and the real significance of these methods is therefore also left in some doubt. While the procedures which are thus "approved" are written out at sufficient length, the arrangement and presentation are not uniform, and this section also is disappointing.

We also wonder whether Section 4.6, dealing with the detection of pollution by biological examination, is justified at this stage in a publication which purports to be based on proven experience in all corners of the world.

This publication does not come up to as high a standard as had been hoped. The reason for this, no doubt, is that standards vary in various parts of the world and much has yet to be learned of the significance of coliform bacilli in water. The long list of investigations set out suggests further fields of research, and when these matters are clarified the International Drinking Water Standards will probably have universal appeal.

Emergency Surgery. By Hamilton Bailey, F.R.C.S. (England), F.A.C.S., F.R.S.E.; Seventh Edition; 1958. Bristol: John Wright and Sons, Limited. 9¾" × 6¼", pp. 1216, with 1576 illustrations. Price: £9 9s. (English).

THIS classic surgical textbook of the English-speaking world appears in its seventh edition as a large tome of some 1197 pages. Once again it is written almost entirely by Mr. Bailey himself, except for certain chapters which are dealt with by authorities well known in their special fields. Thus, to mention but a few, Professor Anthony Andreasen discusses surgical emergencies likely to be met with in tropical countries; F. R. W. K. Allen describes surgical emergencies which may arise in obstetric practice; F. A. Williamson-Noble has revised the chapter on the eye and the orbit formerly written by the late Eugene Wolff.

There is no doubt that this book has been without peer in the realm of emergency surgery for many years. Indeed, as yet no serious competitor shows any signs of appearing on the horizon to challenge Mr. Bailey's supremacy in this field of surgical authorship. However, the size of the book is making it a little unwieldy, and we wonder whether a little judicious pruning might not be in order. Many photographs could be deleted throughout without harming the book at all.

We note that in this edition infusions of human albumin have not yet replaced plasma or the artificial plasma expanders in the treatment of shock. Disposable sets for the giving of transfusions and infusions with their reduction of pyrogen reactions have not been mentioned. The polythene tubing of such sets, once used, can later be used as non-irritant tubes for gastro-duodenal suction.

In the treatment of severe anaphylactic shock, there is no mention of the value of cortisone.

We have read every edition of this book since the first, which appeared in 1930, and the enjoyment of browsing through each successive edition has never palled, even though it now takes a little longer time. We look forward with pleasure and interest to the next edition.

The Waking Brain. By H. W. Magoun, Ph.D.; 1958. Springfield, Illinois, U.S.A.: Charles C. Thomas, Publisher. 8" × 5", pp. 150, with 54 illustrations. Price: 36s.

THIS volume embodies the author's Thomas William Salmon Memorial Lecture. Magoun, who is Professor of Anatomy in the University of California at Los Angeles, is well known for his experimental investigations on the reticular system in the brainstem. This brief account attempts to correlate his findings with what has been discovered about the functions of the central nervous system in general. Thus, after a cursory historical introduction, successive chapters relate the reticular system to posture, afferent transmission, the hypothalamus and neurocrine regulation, the diencephalic and rhinencephalic systems and emotion, the cerebral cortex with reference to wakefulness and attention, and neuropharmacology. The author considers that the reticular system comprises a lower part, which is possibly adrenergic, and subserves "global alterations in excitability", and a more cephalic part, which may be cholinergic, "with greater capacities for fractionated, shifting influence upon focal regions of the brain".

It must be conceded that the limited size of this work restricts the possibility for extended discussion. Nevertheless, the subject is not free from controversy, and some conflicting opinions could have been considered. As it is, the author's enthusiasm carries him on with a sweep that admits of no alternative considerations and, in the outcome, leads him to claim far more for the reticular system than the facts warrant. Indeed, for an anatomist, the author is very vague about the identity and location of the structures he mentions. It is well known that the whole central nervous system is permeated by a column of intercalary cells; Magoun, apparently, considers that all of this can rightfully be claimed as reticular, provided it responds to stimulation in the way he expects. Consequently, the location of his electrodes is a matter of no great importance. Strangely, he virtually ignores the reticular mechanism in the medulla oblongata, which was the first structure properly called "reticular". It is a pity that more attention was not paid to Brodal's observation that ". . . in the absence of detailed anatomical information the interpretation of brain potentials is fraught with dangers and difficulties". Brodal's careful work on the reticular system is concerned with just that correlation of structure with function; yet he is not mentioned in either the text or the bibliography.

In many ways this is a stimulating work, and experienced readers will be able to insert their own qualifications as they go along. At the same time, its appeal is limited, and it is certainly not for the uninitiated. The production by Thomas is of high standard, and we detected only one misprint: in the "Acknowledgement", "California" is given as "Califorina".

The Eye in Evolution. Volume I of "System of Ophthalmology", edited by Sir Stewart Duke-Elder, G.C.V.O., M.A., LL.D., Ph.D., D.Sc., M.D., F.R.C.S., F.R.C.S.E., F.A.C.S., F.R.A.C.S.; 1958. London: Henry Kimpton. 9¾" × 6¼", pp. 860, with 902 illustrations, 15 coloured plates and 350 marginal illustrations. Price: 126s. (English).

THE first volume of "A System of Ophthalmology" edited by Sir Stewart Duke-Elder is an expansion into nearly 800 pages of pages 1 to 20 of the first volume of his "Text-Book of Ophthalmology". The "System" is to comprise 15 volumes, as against seven of the "Text-Book", and the task of writing it is to be shared by Duke-Elder's colleagues at the London Institute of Ophthalmology. Because of his special interest in the comparative anatomy of the eye, the editor has himself written this volume, "The Eye in Evolution". Commencing with a description of the reaction to light of *Euglena*, it is a survey of the literature of the reaction of plants and animals to light. In their encyclopædic works on the subject, Franz, Kolmer, Rochon-Duvigneaud and Walls confined themselves to the vertebrate eye, whilst Polyak chose an even narrower field. Ovio went further, commencing his first chapter with an account of Ehrenberg's description in 1838 of the reaction to light of *Euglena viridis*. On a more elaborate plan than that of Ovio, the volume is profusely illustrated with photomicrographs and drawings beautifully reproduced, as well as with copious marginal illustrations designed to orientate the reader to the organism under discussion.

The plan of the book is logical. An introductory section of more than 100 pages discusses the effect of light on living organisms. This is followed by Part II on the evolution of the visual apparatus, Part III on the function of eyes of animals and Part IV on evolutionary byways. Invading as he does the territories of the botanist and the zoologist, the author has taken great care with his classifications. For the less erudite he has appended a palæontological table and a zoological glossary—so that we may no longer be at a loss about *Euglena*, he defines it as "a flagellate protozoon which forms green scum on stagnant water".

This is a book, not only for the eye specialist, but for him who is interested in the magic of the world around him. Whether he is describing the sensitive heliotropism of the Bengal plant *Hedysarum girans* as it nods to a passing cloud, the panoramic vision of the jumping spider *Evarcha blanchardi* with its eight eyes, or the homing instincts of birds and bees, Duke-Elder never ceases to hold the reader's interest. He presents a good case for the evolution of the eye of invertebrates from the surface epithelium, but can offer no solution to the puzzle of the origin of that of the vertebrate—Froriep's often-quoted statement that "the vertebrate eye sprang into existence fully formed like Athene from the forehead of Zeus" having lost none of its significance since it was first made in 1906.

The crux of the matter is the eye and the neopallium of man. If the appearance of the macula with a consequent great increase in visual acuity led to the "explosive" development of the neo-pallium, why have the birds lagged behind? And why is the Gippsland water-dragon

with his magnificent fovea left with the brain of the lizard? The search for a primordium of a macula in the primates has, so far, been fruitless. Polyak has demonstrated a shallow fovea in *Tarsius* which, on the available evidence, is more likely to be the end and not the beginning—*Tarsius*, like *Tuatara* the archaic reptile from New Zealand, having sought refuge in a nocturnal existence, with consequent loss of its cones and a shallowing of its fovea.

The epilogue is Duke-Elder's confession of faith, the expression of the humility of a mind which, after a life-time of inquiry, admits that the development of the intellect of man is a subject "fraught with difficulties so great as to make a final solution impossible"—a statement which may seem out of place in a system of ophthalmology, until it is appreciated that the eye and brain of man are the handmaidens of his intellect.

This book should be in every doctor's library.

The Year Book of Pathology and Clinical Pathology (1957-1958 Year Book Series). Edited by William B. Wartman, B.S., M.D.; 1958. Chicago: The Year Book Publishers. Melbourne: W. Ramsay (Surgical), Limited. 7¼" × 5", with 171 illustrations. Price: 88s.

THIS volume is again ably edited by W. B. Wartman, and follows the same arrangement as in former years. It provides a comprehensive selection of abstracts of the most important papers which have appeared during the year under review (1957) in the fields of pathology and related subjects. In the first part of the book, the chapter on general pathology contains sections on subjects such as reactions to drugs, fibrinoid, teratology, forensic pathology, etc. Other aspects of pathology are dealt with under the various systems of the body. The chapter on the urinary system is introduced by a short article on experimental nephritis by Simon Koletsky, which seems to indicate that the interrelationships of the nephritides are as much in the melting pot as ever, and is followed by abstracts of seven papers dealing with new ways of looking at the structure of the kidney. From these it is evident that this is one field in which rapid advances are being made with the aid of improved techniques. In addition to the well-placed editorial annotations, the volume is enlivened by an introduction consisting of excerpts from the editor's diary of a European tour, and each of the two sections of the book is introduced by appropriate extracts from *The Lancet's* Widdicombe File—"Publish or be Damned" before the section on pathology, and "Why did I Ask for This?" before that on clinical pathology. Even those not directly concerned with the subject indicated by the title will not regret it if they can find an hour or two in which to browse through this store of interesting and important information about what is going on in the pathologists' world.

Anatomy and Physiology for Nurses. By W. Gordon Sears, M.D., M.R.C.P.; Third Edition; 1958. London: Edward Arnold (Publishers), Limited. 7½" × 4¾", pp. 384, with 220 illustrations. Price: 12s. 6d. (English).

THAT this is an extremely popular book is shown by the fact that each edition has been reprinted several times, and it has already been translated into Afrikaans.

This edition now employs the modern anatomical terminology, and covers the subjects of anatomy and physiology very adequately for the standard required for our nurses. It has been written especially for the syllabus laid down by the General Nursing Council for England and Wales for their preliminary State Examination. At the end of each chapter there are questions to test the reader's knowledge, mostly abstracted from examination papers of the General Nursing Council.

One can recommend this book for Australian nurses and their teachers.

A Method of Anatomy: Descriptive and Deductive. By J. C. Boileau Grant, M.C., M.B., Ch.B., F.R.C.S. (Edin.); Sixth Edition; 1958. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 10" × 6¾", pp. 906, with 862 illustrations. Price: £6 1s.

FROM its first appearance in 1937, Grant's "Method of Anatomy" was a great success. This was due to the refreshing simplicity of approach, the economically direct descriptions, the inventive fertility of the author in making novel analogies, the clarity of the illustrations and the reasonable compass of the work and its price. In consequence, the past 20 years have seen six editions comprising in all 18 printings. The present edition retains most of those virtues, including nearly 300 additional figures of excellent quality; but alas! the bulk has expanded by well over 200 pages, and the price is comparable with that of more elaborate works, many of which are lavishly illustrated in colour. However, perhaps the English version will be cheaper.

The great mass of anatomical knowledge is today common property, and Grant's major virtue lies in his novel form of presentation of well-worn details. At the same time, he is a great borrower of ideas, particularly in his general section. Sometimes the sources are acknowledged. However, not all the work taken from original sources is employed with discernment. Surely, for example, it is now time to drop the Caldwell and Moloy classification of the female pelvis—unless all the proper qualifications are included as well. A classification which credits 75% of women with pelves of masculine or ape-like proportions is manifestly absurd. Incidentally, Figure 394, which illustrates this and has been copied unchanged from edition to edition since the second, is clearly incorrect, since what is obviously "female" is shown as "male, 32·5%", whereas "female, 41·4%", should be "male". Also, the author's incursions into the anthropology of the skull are naïve. Anybody really familiar with the subject knows that the apparent gap between the "prehistoric" skull illustrated and that of modern man can be bridged by a continuous series of intervening types. The implication of a basic ethnic difference is unworthy of a modern work on human anatomy.

Despite these minor strictures, the work as a whole can be thoroughly recommended to the student of topographical anatomy.

The Year Book of Cancer (1957-1958 Year Book Series). Compiled and edited by Randolph Lee Clark, jnr., B.S., M.D., M.Sc., D.Sc., and Russell W. Cumley, B.A., M.A., Ph.D.; 1958. Chicago: The Year Book Publishers. Melbourne: W. Ramsay (Surgical), Limited. 7¼" × 5", pp. 528, with 191 illustrations. Price: £4 8s.

THIS is the second year in which a volume with this title has been included in the Year Book series, and its layout is essentially similar to that of the first volume. It begins with ten chapters consisting of abstracts of articles on cancers in the various regions of the body, and four chapters dealing with special groups of tumours. These are followed by six chapters dealing with various particular aspects of cancer, such as chemotherapy, reconstruction and rehabilitation, the treatment of advanced tumours and epidemiology. Four of the remaining chapters deal with the results of experimental work, mainly on laboratory animals. The last chapter, entitled "Oncology in the Soviet Union", contributed by M. B. Shirkin, is a brief informative summary of the present position of cancer treatment and research in that country. He notes, *inter alia*, that in the Soviet Union oncology is recognized as a separate speciality in medicine as well as in research; that there is in Russia, as elsewhere, a difference of opinion as to the importance of smoking in the causation of cancer of the lung; that the principle of cancer detection by the examination of presumably healthy individuals has been accepted in Russia, though population surveys for cancer are as yet a goal rather than an achievement.

This book is a mine of important information about current trends in all aspects of thought about cancer, presented in a readily digestible form, and should be very useful both to those looking for general information on the subject, and as a book of reference for those with a specialized interest.

Fractures and Other Injuries. Edited by Edwin F. Cave, M.D.; 1958. Chicago: The Year Book Publishers. Inc. 10" × 7", pp. 884, with 611 illustrations. Price: $28.00.

THIS is an excellent book, the product of a famous medical centre, based on the experience for the past 25 years of its fracture clinic. Its scope is rather wider than may be expected from the title. The "Fractures" part is very good, with as complete a coverage as most surgeons could want, and a brevity which is a great boon to the busy surgeon. The "And Other Injuries" part contains much unexpected material, because the fracture clinic no longer confines itself to the treatment of fractures and dislocations, but deals with all forms of trauma. Thus we find chapters on cranio-cerebral injuries, chest injuries, management of abdominal injuries, injuries to the genito-urinary tract, blood vessel injuries, injuries to tendons, injuries to peripheral nerves, treatment of burns, and injuries due to cold. All in all, almost every type of injury has been described and a well-tried form of modern treatment advised.

With such a wide coverage, we were not surprised to find that there were many contributors to the volume, all of whom could be regarded as experts in their par-

ticular field. This can be regarded as adding to the value of the book, because their opinions are, in the main, vouched for by a distinguished editorial committee headed by Edwin F. Cave. There are many tables of end results, which are valuable and often illuminating. Many excellent diagrams are given, and the X-ray reproductions are clear.

We can thoroughly recommend this book to any surgeon who has to deal with trauma—and that must surely include the vast majority. Although orthopædic surgeons will probably not read all the chapters, they will find those dealing with their own specialty most interesting. Orthopædic surgeons being such sturdy individualists, they may not agree with all the methods used; but they cannot but treat with respect the suggestions and recommendations of a school which has produced Smith-Petersen, Joseph Barr, Philip Wilson and many other famous surgeons.

The Year Book of Medicine (1958-1959 Year Book Series). Edited by Paul B. Beeson, M.D., C. Munchenheim, M.D., W. B. Castle, M.D., T. R. Harrison, M.D., Franz J. Ingelfinger, M.D., P. K. Bondy, M.D.; 1958. Chicago: The Year Book Publishers, Incorporated. 7¼" x 4¾", pp. 784, with 123 illustrations. Price: $7.50.

THIS volume comes from the same panel of editors as in previous years, and the arrangement follows the same line. The first part, on infections, contains sections on various aspects of infectious disease, and diseases or groups of diseases of special interest. The section on fungous diseases includes three reports on the successful use of amphotericin B in blastomycosis, cryptococcus meningitis, and coccidioidomycosis respectively. A section on vaccines for virus diseases includes an interesting account of rabies prophylaxis, with the surprising statement that in the United States from 6000 to 10,000 rabid animals are reported annually, and that as many as 50,000 persons receive antirabies prophylaxis each year. The section on collagen diseases appears in this part of the book, perhaps for want of a better home. An editorial comment here supports the hypothesis that cases of rheumatoid arthritis in which the L.E. phenomenon is present are in fact cases of systemic lupus erythematosus presenting as rheumatoid arthritis. The second part is devoted to papers referring to the chest, the third part to the blood and blood-forming organs, the fourth part to the heart and blood vessels and the kidney, and the fifth part to the digestive system. The last part is devoted to metabolism, and deals with the endocrine systems, nutrition, and carbohydrate and lipid metabolism. The whole volume presents an imposing selection of abstracts of important papers in every branch of medicine and, more than most of the Year Book series, should appeal to the general medical reader who wishes to keep himself informed about the latest developments in the general field of medicine.

The Principles and Practice of Medicine: A Textbook for Students and Doctors. By Sir Stanley Davidson, B.A., M.D., F.R.C.P. (Ed.), F.R.C.P. (Lond.), M.D. (Oslo); 1958. Fourth Edition. Edinburgh and London: E. and S. Livingstone, Limited. 8½" x 5½", pp. 1078. Price: 35s. (abroad).

THE extent to which this book has established itself as a textbook for students is clearly shown by the rapidity with which new editions continue to appear. To quote from the preface of the fourth edition:

> Within the short period of six years four editions and three large reprints of this textbook have been published. In addition the book has been translated into Spanish for sale in Spain and in particular South America, and as we go to press, requests for translations have come in from other sources. It seems reasonable to assume, from the phenomenal demands reported by booksellers in the British Commonwealth, the United States of America and other parts of the world, that the style, composition and presentation of material have met with the approval of large numbers of students and doctors . . .

In the face of such universal approbation, any general criticism would obviously be misplaced, although a textbook covering the whole field of medicine in such modest dimensions cannot be other than tabloid. In fact the book remains, as it always has been, a complete collection of lecture notes on the course in medicine at the University of Edinburgh.

The latest edition includes reference to most of the recent developments, particularly in therapeutic agents. However, the confusion in the last edition between methonium compounds and the individual members thereof is perpetuated.

There is no doubt that this is now one of the most favoured of student textbooks on medicine.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"The Medical Clinics of North America, March 1959", Volume 43, Number 2; 1959. Philadelphia and London: W. B. Saunders Company; Melbourne: W. Ramsay (Surgical) Limited. 8½" x 5½", pp. 303, with illustrations. Price (annual subscription): Cloth binding £8 2s. 6d.; paper binding, £6 15s.

Contains 19 articles prepared by 28 authors from the hospitals and medical schools of Chicago on "The Rationale and Clinical Interpretation of Laboratory Tests".

"Bone Tumors", by Louis Lichtenstein, M.D.; Second edition; 1959. St. Louis: The C. V. Mosby Company; Melbourne: W. Ramsay (Surgical) Limited. 10¼" x 6¾", pp. 402, with 220 illustrations. Price: £6 12s.

The first edition appeared in 1952. The book has been revised and a good deal of new material added.

"The Year Book of the Ear, Nose & Throat (1958-1959 Year Book Series)", edited by John R. Lindsay, M.D.; with a Section on Maxillofacial Surgery edited by Dean M. Lierle, M.D., and William C. Huffman, M.D.; 1959. Chicago: The Year Book Publishers. Melbourne: W. Ramsay (Surgical) Limited. 7¼" x 5", pp. 400, with 113 illustrations. Price: 82s. 6d.

One of the Practical Medicine Series of Year Books.

"Insect Resistance and Vector Control, Eighth Report of the Expert Committee on Insecticides", World Health Organization Technical Report Series, No. 153; 1958. Geneva: World Health Organization. 9¼" x 6¼", pp. 68. Price: 3s. 6d.

The report from a meeting held in November, 1957.

"Joint FAO/WHO Expert Committee on Nutrition, Fifth Report", World Health Organization Technical Report Series, No. 149; 1958. Geneva: World Health Organization. 9¼" x 6¼", pp. 56. Price: 3s. 6d.

The report from a meeting held in October, 1957.

"Mental Health Aspects of the Peaceful Uses of Atomic Energy, Report of a Study Group", World Health Organization Technical Report Series, No. 151; 1958. Geneva: World Health Organization. 9¼" x 6¼", pp. 56. Price: 3s. 6d.

The report from a meeting held in October, 1957.

"Expert Committee on Training of Health Personnel in Health Education of the Public, Report", World Health Organization Technical Report Series, No. 156; 1958. Geneva: World Health Organization. 9¼" x 6¼", pp. 40. Price: 1s. 9d.

The report from a meeting held in October-November, 1957.

"Introduction of Radiation Medicine into the Undergraduate Medical Curriculum, Fifth Report of the Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel", World Health Organization Technical Report Series, No. 155; 1958. Geneva: World Health Organization. 9¼" x 6¼", pp. 24. Price: 1s. 9d.

The report from a meeting held in November, 1957.

"Bigger's Handbook of Bacteriology: For Students and Practitioners of Medicine", by F. S. Stewart, M.D. (Dublin), F.R.C.P.I.; Seventh Edition; 1959. London: Baillière, Tindall and Cox. 7¾" x 5¼", pp. 622, with 92 illustrations. Price: 37s. 6d. (English).

This book first appeared in 1925. It has been extensively altered and largely rewritten since the sixth edition was published in 1949.

"The Healing Voice: Treatment by Hypnosis", by A. Philip Magonet, 1959. London, Melbourne, Toronto: William Heinemann Ltd. 7¾" x 5", pp. 216. Price: 22s. 6d.

The author discusses the nature of hypnosis and its use in the management of various conditions.

The Medical Journal of Australia

SATURDAY, JUNE 27, 1959.

THE AUSTRALIAN ACADEMY OF SCIENCE.

NOT the least of the signs that Australia has grown into adult nationhood is the establishment of the Australian Academy of Science. This was initiated in 1952 by a group of Fellows of the Royal Society of London resident in Australia. With the help of other Australian scientific leaders, they set up a body which received a Royal Charter from Her Majesty Queen Elizabeth II during her Australian tour in 1954, and which may be regarded as the representative body of Australian scientists at the national level. Now, within five years of its foundation, the Academy has constructed a home for itself in Canberra (see page 894). The copper-sheathed dome of the building, rising from the waters of a surrounding moat, is backed by the rolling bronze-green hills of Australia's national capital. Beneath the dome are a central conference chamber, offices, a council room and a superb reception room, which overlooks an expanse which will within a few years be part of the central lake-system of Canberra. The conference chamber will be the venue of the annual meetings of the Academy itself, and will be extensively used for meetings of Australian scientific and professional societies, as well as for such international symposia as may be held in Australia.

The functions of the Academy are comparable with those of the Royal Society of London, which was itself represented at the opening of the building by its senior Vice-President, Sir Lindor Brown. The fellowship of the Academy now has a total of 87, and up to six new Fellows are elected each year. The President since 1957 has been Sir John Eccles; his predecessor was Sir Mark Oliphant. Among the Fellows, workers in the medical sciences are well represented. The President, Sir John Eccles, is Professor of Physiology in the Australian National University, and Professor F. Fenner, who occupies the chair of microbiology in the same institution, is the Secretary, Biological Sciences. Other Fellows in the medical sciences are Dr. I. M. Mackerras and Dr. E. H. Derrick of Brisbane, Dr. M. R. Lemberg and Dr. R. J. Walsh of Sydney, Professor A. Albert, Professor C. Courtice, Professor A. H. Ennor and Dr. A. Gottschalk of Canberra, and Sir Macfarlane Burnet, Professor E. S. J. King, Professor S. Sunderland and Professor V. M. Trikojus of Melbourne.

The national responsibilities of the Academy receive material recognition from the Commonwealth Government in the form of an annual grant towards current expenses. The Academy, however, remains autonomous, and indeed the value of its services derives very largely from its autonomy. It is too young a body to have achieved financial self-sufficiency through endowments, but the erection of the building with its conference chamber and offices has been made possible entirely by generous contributions to the Academy building fund on the part of Australia's great industrial firms. To these firms, to the architects and to the vision and energy of the members of its early Councils, the Australian Academy of Science and the people of Australia owe a debt of gratitude; for they have created one of the most striking and important structures in Canberra, and they have provided the Academy with a home of its own which is modern, dignified and of the highest quality. We may be confident that the Academy will make an increasingly important contribution, not only to the cause of science in our community, but also to the whole life of the Australian people.

THE INTERNATIONAL COMMUNITY OF SCIENCE AND SCHOLARSHIP.

IT is no exaggeration to affirm that the dominant emotion of mankind at the present time is fear, on both the individual and the international levels. All over the world attempts are being made, in a multitude of different ways, to find a solution to the problem. No spectacular success has as yet been achieved; and yet, the very existence of so many efforts by so many people of different races, types and political affiliations carries within it a germ of hope. There is, it would seem, a basic urge to cooperation. The matter is discussed from one significant point of view in "The President's Review from the Rockefeller Foundation Report, 1957", in a section entitled "The Broadening Base of Cooperation". This presents a vision of the way in which cooperation brought about by the building of common action upon common interest among people engaged in scientific and cultural activities can, so to speak, penetrate upwards and spread. This group of people make up what is called "the international community of science and scholarship", whose characteristics are stated to be as follows:

> Its ranks are open to all who wish to make a contribution of ideas; there are no admission committees. Its offerings are free to any who are able and willing to inquire. It bestows its accolades of respect largely on a basis of merit, for respect can be freely given or withheld. Precedence is not decided by procedures which can be commanded, influenced, or corrupted. Fraud and deceit are simply and effectively policed by the independent investigations of others. If authority overreaches and attempts to impose dogma upon fact, it is rebuffed with contempt and sympathy flows to the victims of the clumsy effort. The community is linked by a strong network of communication through books, tens of thousands of scientific and learned journals, thousands of meetings, and a pervasive flow of travel and personal correspondence. If differences of language remain something of a barrier, much has been done to remove it; scientists and scholars of diverse origins and backgrounds quickly feel at home with each other.

Members of the community of science and scholarship, we are told, think beyond national frontiers and back over all man's experience; they are aware that Nature does not distribute her secrets with political discrimination. The "brilliant innovator" acknowledges his debt

to men of many countries and other centuries, and he draws some of his satisfaction from the knowledge that men unknown to him will build on or supersede his work.

> Moderation and humility are in the environment, for the community's raison d'etre is the discovery of truth and the exposure of error, including one's own. The assertion of personal or national interest is largely ineffective and ambition is subject to the disciplined discrimination with which the community bestows its respect.

The "Review" goes on to stress the importance of agencies, such as the Rockefeller Foundation, charged with "building common action upon common interest". It is good for us to pause and consider that tens of thousands of men and women of many nationalities are occupied in "eradicating malaria, improving basic food crops, protecting life at sea and in the air, expanding literacy, and stimulating intellectual exchange". To this list might well have been added medical work, not related to malaria eradication, but to do with the care of the underprivileged in a great many lands. Indeed, the World Medical Association is not the least of the organizations "building common action upon common interest". The practising medical profession, by virtue of its close personal contact with people as people, is in a singularly strategic position, and has a correspondingly great responsibility.

Turning to the question of cooperation among governments, the "Review" states that, although this may be interrupted by major differences, it does not depend on political harmony, identity of interest or similarity of social systems; it depends on identifiable, reciprocal practical advantages. Nations that are bitterly opposed to each other will none the less join in an epidemiological reporting service.

> If present danger, therefore, lends urgency to the great issues of war and peace, prudence suggests that as much as possible be done to broaden and deepen the base of cooperation. Man at his best may thus find something worth while to say to man at his worst.

The work of the Rockefeller Foundation has brought it into contact with intergovernmental cooperation in every continent. There is no doubt that health, a decent livelihood and education are "common interests" which help to transform contentious men into natural allies. "If, in the shadow of terror, we are well advised to act at least in some particulars as homo sapiens, there are many opportunities." This is a cheering statement indeed. Evidence in favour of its exactness is found in the existence of loosely-organized international communities of those with similar interests—science, scholarship, the arts, medicine, religion—which function with the least possible attention to political boundaries and political events. Trade and commerce also play their part, and the law is able to effect adjustments across national frontiers. It is worth remembering that most of these informal communities are older than the modern national state, and have survived in spite of military and political conflict and social and political differences. The record of the Rockefeller Foundation in encouraging "the broadening base of cooperation" is too well known to require elaboration in this place. It extends over the whole world and into most spheres of scientific and cultural activity. However, it is good for us to realize, as we must do on reading this "President's Review", that the results may be more far-reaching than even those who direct its benefactions with imagination and foresight can know. The two conclusions set out in the section of the "Review" that we have been discussing may fittingly end this account:

> The first is that present tensions underscore the need to seek out and cherish those elements of modern life which bind men together across national and cultural frontiers . . . .
>
> Second, governments have demonstrated their ability to set political issues aside at selected points to cooperate effectively for the increased well-being of their peoples. Additional possibilities can be opened up with boldness and imagination and present effort can be improved and strengthened. If international politics has not yet found practicable means for settling disputes, there is much to be said for reducing the field of politics by steadily broadening the base of cooperation on the long-range humane interests of man.

Current Comment.

UROLOGICAL ASPECTS OF CARCINOMA OF THE CERVIX.

BECAUSE of the anatomical relationship of the structures concerned, it is inevitable that the urinary tract should sometimes become involved in the treatment of malignant disease of the uterus. In a review of the urological complications occurring during the management of about 1700 patients with carcinoma of the cervix treated in the Pondville Hospital, Massachusetts, since 1927, C. J. E. Kickham[1] makes a plea for closer liaison between the gynæcologist and the urologist in planning the management of such cases. He states that the services of the urologist are often sought only when the gynæcologist faces urological difficulties which could have been to some extent forestalled. The earliest indication of bladder disturbance comes from extra-vesical pressure due to the raising of part of the bladder floor. As the carcinoma infiltrates the bladder wall, congestion, submucous hæmorrhage and later œdema may often be seen. Further invasion may lead to the cystoscopic appearance of submucous nodules, with or without ulceration. On the other hand, the bladder may show no changes even if invasion is extensive in the broad ligament, and in these cases occlusion of the ureter may occur. Another important set of complications arises out of the treatment of the disease; these include the so-called "remote radiation effect", which may cause much diagnostic confusion if the attending surgeon is not aware of the likelihood of its occurrence. Early (acute) radiation reactions are manifested by cystitic types of symptoms, which usually subside uneventfully. Remote reactions take months, or even years, to manifest themselves. The findings may be pathognomonic, cystoscopy revealing a sharply defined area of central slough surrounded by a zone of hyperæmia and œdema located in the midline, a little proximal to the base of the trigone. This may be followed by fistula formation. A history of radiation treatment of the carcinoma followed by a long interval before the appearance of this lesion is in favour of radiation reaction. Otherwise it may be due to actual cancerous invasion.

Kickham also points out that radical total hysterectomy with bilateral dissection of lymph nodes, when properly performed, almost inevitably entails disturbances of vesical function, and there is a severe risk of ureteric injury. Neurogenic vesical dysfunction is a common sequela of this type of surgery. Kickham leaves his patients with an indwelling Foley's catheter for two months, part of this time being spent out of hospital.

[1] *J. Urol.* (*Baltimore*), 1958, 80: 229 (October).

At the end of two months from the time of the operation, the patient returns to hospital, and remains overnight. If any residual urine is discovered after the patient's first natural voiding, the catheter is replaced and the patient is sent home for another month. Kickham points out that there are many causes of injury to the ureter, which may result either from the natural progress of the disease or from its management. In extensive radical operations, protection of the blood supply of the ureter is of vital importance, but the surgical removal of the growth must be adequate. He states that in many patients, provided that the integrity of the opposite kidney is proved over a sufficient period, nephrectomy may be the best course. However, as a temporary (and sometimes permanent) measure, nephrostomy is often a most valuable operation, as well as being easy and safe. An obstructed ureter may be better dealt with, as regards both diagnosis and treatment, after a period of diversion of the urine. Various means of direct or indirect reimplantation of the ureter into the bladder are now available.

AN OPPORTUNITY FOR POST-GRADUATE TRAINING IN PHYSICAL MEDICINE AND REHABILITATION.

DURING his visit to Australia in the latter half of 1958, Dr. Howard Rusk, Professor of Physical Medicine and Rehabilitation at New York University, referred with admiration and affection to the late Frank H. Rowe, who was Director-General of Social Services, Commonwealth of Australia, from 1949 to 1958. It is pleasing to learn that Mr. Rowe's contribution to the development of rehabilitation services for the physically handicapped is to be commemorated internationally. The Australian Advisory Council for the Physically Handicapped, the International Society for the Welfare of Cripples, the World Rehabilitation Fund and the Smith, Kline and French Foundation jointly announce the creation of the Frank H. Rowe Memorial Fellowship for post-graduate training in physical medicine and rehabilitation, which is available to a physician from Australia.

The Fellowship is administered by the World Rehabilitation Fund, and has been made possible by the cooperation and support of the Smith, Kline and French Foundation. It will be tenable for a minimum period of one year. Training will be given in the Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York City, which bears the professional responsibility for physical medicine and rehabilitation services at the Institute of Physical Medicine and Rehabilitation, Bellevue Hospital, Goldwater Hospital, and its associated regional affiliated hospitals. All the facilities are in New York City or its environs, and training programmes will be carried out in these clinical services. Opportunities for special experience are available in pædiatric and geriatric rehabilitation and in the management of respirator patients. The Fellowship may be awarded to a physician without prior specialist training, or to a recognized specialist in internal medicine, orthopædic surgery, neurology or public health who wishes to increase his knowledge of physical medicine and rehabilitation and to explore the relationship of this field of medicine to his own primary specialty. Attention is called to the fact that the holder of the Fellowship will be in the United States when the eighth World Congress of the International Society for the Welfare of Cripples is held in New York City from August 29 to September 3, 1960, and the third International Congress of Physical Medicine in Washington from August 21 to 27, 1960. In addition to his professional training, the holder of the Fellowship will have the opportunity of participating in a wide programme of cultural activities, including visits to Washington, D.C., Philadelphia, Boston and other places of historical and cultural interest. Preliminary screening of the applications will be carried out by a selection committee appointed by the Australian Advisory Council for the Physically Handicapped, and consisting of Dr. Ivan B. Jose (Australian Post-Graduate Federation in Medicine), Dr. Leigh T. Wedlick (Federal Council of the British Medical Association in Australia), Dr. Douglas Galbraith (Australian Advisory Council for the Physically Handicapped) and Dr. George Burniston (Commonwealth Department of Health and Commonwealth Department of Social Services, including the Commonwealth Rehabilitation Service).

The financial aspects and conditions of the Fellowship will be set out in the advertisement columns of this Journal on two occasions. Information concerning applications, which close in September, 1959, may be obtained from the Honorary Secretary of the Australian Advisory Council for the Physically Handicapped, 389 Lonsdale Street, Melbourne.

THE HUMAN HAND.

THE hand has a universal appeal—to the anatomist and physiologist, the biologist and the psychologist, the artist and the anthropologist, the physician and the surgeon; and not least to the ordinary citizen when his own limb is injured. A good deal of interesting material on the subject is to be found in a monograph by Seza Révész, a Dutch psychologist, which has been translated into English by Professor John Cohen of Manchester, under the title "The Human Hand".[1] Through the nervous system the hand has fashioned much of our civilization and culture, and also expresses some of our thoughts and emotions. Biologically, it is a combined sensory and motor organ; it recognizes not only an object itself but its material and its form. Most people can distinguish a difference in thickness of about 1/500 mm., and, because of this, a blind man can easily read the Braille scripts. Many of us know expert wool buyers who can grade samples more accurately than others by touch alone. This sensitivity to touch is only partly abolished by covering the finger with a thin layer of something, as surgeons quickly learn when they use rubber gloves.

In evolution, the most important development has been the acquiring of opposition and flexibility of the thumb, and the close connexion in the brain between the centres controlling the hand and speech. The hand is a powerful working instrument, and many mechanical tools are copied from the hand's action—e.g., the hook, the rake and tongs; indeed, such instruments are really extended hands. The hand is equally important in the exercise of skill, as in various arts and crafts, in music and in some sports. In many of these activities the blind can participate without serious handicap. Attempts have been made to correlate the hand with its owner's character and mind. Révész states that certain peculiarities are associated with a disposition to schizophrenia or manic depression. He comments, with polite reticence, that it is "questionable whether the characteristics derived from the lines of the hand are, in fact, correct". On the movement of the hands he is more certain: "every gesture . . . brings something psychical to expression"; and this remark is followed by a discussion on the significance of various gestures, and on the handshake as an expression of mutual trust. It has been observed that many of the gestures used for greeting have also been used in prayer and other religious practices. These movements are precisely fixed, and all deviations are strictly forbidden. For deaf mutes the hand provides the most satisfactory method of communication, and hand signs are still used among some primitive people as a means of speaking even if they have a spoken language. With some primitive people, too, the hand is often used for magical purposes. One form of magic is positive and is designed to gain some end, as in sorcery; the other form is negative and aims to ward off dangers or inconveniences, as in taboo. It is in the realm of magic that the power of suggestion, verging on hypnotism, comes into force, not only through word and look, but also through touch and gesture. The hand indeed is a powerful and fascinating organ.

[1] "The Human Hand", by Seza Révész, translated by J. Cohen, 1958, Routledge and Keegan Paul, London.

Abstracts from Medical Literature.

PÆDIATRICS.

Fœto-Maternal Transfusion.

H. A. PEARSON AND L. K. DIAMOND (*A.M.A. J. Dis. Child.*, March, 1959) present a report on two infants with severe non-hæmolytic anæmia in the neonatal period. Fœto-maternal transfusion was proven in each case by demonstrating in the maternal blood a markedly elevated level of fœtal (alkali-resistant) hæmoglobin and a minor population of antigenically dissimilar erythrocytes. One of the infants had a moderate normochromic anæmia at birth and the clinical and laboratory findings of recent hæmorrhage. The other infant appeared remarkably well compensated despite very severe anæmia. Examination of his blood revealed a hypochromic microcytic picture suggesting chronic blood loss. The authors state that in cases of this syndrome, if the transplacental hæmorrhage into the maternal circulation is rapid and massive, the infant either dies *in utero* or exhibits signs of severe post-hæmorrhagic shock at birth. If the infant's cardio-vascular system is able to adapt successfully to the degree of blood loss, anæmia and pallor are the cardinal signs. The mother usually experiences no symptoms as a result of the transfusion from her baby. However, instances have been reported in which the infant's blood was incompatible with the mother's, and a transfusion reaction characterized by fever and chills or hyperbilirubinæmia occurred. The treatment of the infants in these cases is simple transfusion with packed or sedimented cells if the anæmia is of severe degree or if the infant shows signs of distress. Supplemental oral iron medication is indicated in the recovery stage as the loss of any blood from the fœtus may strain the already precarious iron balance of the infant.

Prematurity Kernicterus and Replacement Transfusion.

V. MARY CROSSE *et alii* (*Arch. Dis. Childh.*, October, 1958) report the use of replacement transfusion as a means of preventing kernicterus of prematurity. The possibility of premature babies developing kernicterus from jaundice not due to hæmolytic disease is now generally recognized. The authors have carefully observed the development of jaundice in 1320 premature babies admitted to three premature baby units during a period of two years, and exchange transfusions have been undertaken for 92 babies (8·4%) who developed hyperbilirubinæmia not due to hæmolytic disease. Of the transfused babies, 18 required more than one transfusion. There were two deaths among the 92 babies transfused (115 transfusions), but one of these deaths could not be attributed either to the transfusion or to kernicterus. The highest serum bilirubin level reached was less than 20 mg. per 100 ml. in 31·5%, 20 to 22 mg. per 100 ml. in 42·4%, 22 to 27 mg. per 100 ml. in 22·8% and over 30 mg. per 100 ml. in 3·3%. No baby with a serum bilirubin level below 22 mg. per 100 ml. developed kernicterus, but 19·1% of those with levels of 22 to 27 mg. per 100 ml. and 33·3% of those with levels over 30 mg. per 100 ml. developed this complication. Of the 92 transfused babies five later showed signs which were probably due to kernicterus. Until some better way has been found to prevent or treat hyperbilirubinæmia not due to hæmolytic disease, it seems that replacement transfusion is the best way of preventing kernicterus.

Familial Dysautonomia.

T. MCKENDRICK (*Arch. Dis. Childh.*, October, 1958) discusses the condition of familial dysautonomia and reports a case. This is a rare familial disease affecting the nervous system, with particular dysfunction of the autonomic system. A diverse collection of symptoms may occur, but those that are considered essential for the diagnosis are Jewish ancestry, reduced tear secretion, excessive sweating, difficulty in swallowing, cold hands and feet, postural hypotension, poor motor coordination, corneal anæsthesia, relative indifference to pain and emotional lability. Breath holding attacks, retarded physical and mental development, bowel upsets, excessive dribbling, attacks of high fever, orthopædic deformities, frequent respiratory infections and a tendency to accidental injury may all occur. The outlook as regards survival is uncertain. In about a fifth of all the recorded cases death has occurred either in the first year of life or during childhood. Most of the deaths seem to have been due to respiratory infection. Corneal ulceration commonly develops because of poor corneal sensation and defective tear formation. The oldest patient so far recorded was 23 years of age.

Current Management of Nephrosis.

C. M. RILEY AND P. R. SCAGLIONE (*Pediatrics*, March, 1959) present a statistical evaluation of adreno-cortical-active hormone therapy in children with nephrosis. They conclude that the life expectancy of children with nephrosis has greatly increased in recent years. Though no direct evidence can be presented that this increase is due to the use of steroid therapy, there is a good deal of indirect evidence to suggest this conclusion. As antibacterial treatment had already reduced deaths from infection among nephrotic patients to a low level by 1946, eliminating this cause of death would not appear to have wrought this change. Coincidental with intensive steroid therapy, not only does symptomatic improvement occur, but also all measurable abnormalities tend to disappear. Thus the urine clears, or nearly clears of protein, proteins in the serum resume a normal distribution by paper electrophoresis, and lipæmia diminishes. Though not conclusive, the evidence strongly suggests that the improved survival of children with nephrosis is due in fact to the increased and more intensive use of adrenal-active hormones. The authors then describe the general approach to therapy as followed at the Babies' Hospital, New York. The patient is given prednisone in a dosage calculated only roughly by his size, 40 mg. a day for those under three years of age, 60 mg. a day for the older ones, or sometimes more. "Gantrisin" in therapeutic doses is given at the same time, as a relatively effective antibacterial agent. With this regimen diuresis usually begins after 10 to 14 days. Steroid administration is continued until the erythrocyte sedimentation rate has returned to normal, usually within three to four weeks. At such time proteinuria in early cases will usually have cleared completely. When this stage is reached the dose of prednisone is tapered to zero over a period of three to four days. After a four-day rest period, the patient is again given prednisone and "Gantrisin" in the same doses for three consecutive days. This schedule of three days of treatment each week is continued for four to five months, and if proteinuria has been absent over this time the time interval is extended to three consecutive days of treatment every two weeks. If after several months on this programme the course is satisfactory, medication can be withdrawn completely. Continued observation for an indefinite period is advised. The authors conclude that the risks inherent in hormone therapy appear to be more than counterbalanced by the reduction in early mortality.

Staphylococcal Infections of the New-Born.

J. BRET *et alii* (*Presse méd.*, January 31, 1959) have studied the ætiology of staphylococcal infections of the new-born, the clinical material consisting of 300 consecutive mothers and their infants, and present the following conclusions. At the time of confinement, 15% of women are carriers of pathogenic staphylococci in the vagina. No infant born of a woman free from staphylococci in the vagina was found to have pathogenic staphylococci in the buccal cavity or the nasal cavity immediately after birth. Conversely, new-born infants who were found at birth to be harbouring pathogenic staphylococci in the buccal or nasal cavities were born of mothers who harboured the same organisms. Of women harbouring pathogenic staphylococci in the vagina, 82% infect the fœtus during labour (12·5% of confinements). Of infants found to be harbouring pathogenic staphylococci at birth, 73% are similarly infected 10 days later (12% of deliveries). Out of every 100 babies leaving the hospital where the study was made, 27 are carriers of pathogenic staphylococci; 12 have become infected during labour and 15 after birth (hospital infection). Even if hospital infection is predominant, infection during delivery is far from negligible, since it is responsible for about 43% of the positive findings. The spontaneous disappearance of pathogenic staphylococci from the new-born (27% of cases) occurs much less readily than in the case of *Candida albicans* (60% of cases). Lesions appeared four days after birth in new-born infants still carrying pathogenic staphylococci. Identification tests of the different strains found in the mother and baby, and in material taken from lesions when these occurred, revealed absolute serological identity between the organisms from the mother and those from the child. Although hospital infection with staphy-

lococci is much more important than with *C. albicans*, transfer of organisms during delivery nevertheless accounts for almost half the cases of infection with the latter. In view of the consequences to mother and child, prophylactic measures seem justified. The authors consider that these should take the form of searching for and treating vaginitis in pregnant women.

Cœliac Disease.

W. SHELDON (*Pediatrics*, January, 1959), in the Kenneth D. Blackfan Memorial Lecture delivered at the Children's Medical Center, Boston, summarizes the modern knowledge of cœliac disease. He has grouped the symptoms of this disease under three headings. The first group comprises diarrhœa, typical stools, abdominal distension, loss of weight and perhaps anæmia. The second group includes the psychological disturbances characterized by depression, contrariness and perhaps anæmia. The third group is concerned with the interference with growth. The symptoms in the first group may well be directly due to malabsorption; whereas it is conceivable that those of the two latter groups may be caused by a circulatory peptide. Failure to grow may be the presenting and virtually isolated symptom of the disease. He states that the new understanding of the role of gluten in the ætiology of the disease has revolutionized our attitude towards treatment, the object of which is now to give a diet normal in all respects except for the strict avoidance of gluten-containing foods. It has also altered the prognosis greatly for the better, for the death rate has now receded to vanishing point while the long-term outlook as regards growth and health has greatly improved. The avoidance of gluten must be absolute, for it only needs traces of it in the diet to produce unsatisfactory results. Furthermore, the length of time for which gluten restrictions must be maintained probably varies from patient to patient, and cannot be stated in terms of months or years. It is necessary to maintain a most careful observation of a child's progress for several years after the restoration of a normal diet. This is greatly facilitated by employing some form of growth chart, as a slowing down of growth may be the only evidence to indicate that gluten intolerance is still present.

A Case of Omphalocele.

M.-P. LEBOUX *et alii* (*Presse méd.*, March 25, 1959) report the successful treatment of a case of omphalocele. The original defect was very extensive, and an operation was performed under local anæsthesia three hours after birth, the tumour being covered with skin by the use of Gross's technique; skin flaps were freed by wide undercutting, and these were closed over the tumour without disturbing the amniotic membrane covering the viscera. After seven days a large part of the skin flaps became gangrenous, and the sloughs separated in due course, but the abdomen remained closed; after 80 days epithelialization of the area was complete, but the cover was thin. At the age of three years operative cure of voluminous bilateral scrotal herniæ was performed. At the age of four years the umbilical hernia, covered by a thin layer of skin, had become reducible, and closure of the abdominal wall in three layers was successfully attempted. At the age of five and a half years, the child was in good health and leading a normal existence. The authors consider that the retention of the amniotic covering of the viscera is of great importance for the success of the first operation, and that patience on the part both of the surgeon and of the patient's family in delaying the second operation till a suitable stage of development has been reached, is essential for the success of the final result.

Peptic Ulceration in Childhood.

W. L. CRAVER AND F. GLENN (*A.M.A. Arch. Surg.*, December, 1958) report 11 cases of primary peptic ulceration in children. Six of these children had episodes of gastro-intestinal hæmorrhage. Two patients were operated on, one by a subtotal gastrectomy, and the other by vagotomy and pyloroplasty. The former child was 12 years old at operation and the latter 10 years. One child aged six weeks died, and at autopsy an ulcer was found in the duodenum just beyond the pylorus. A little girl two years and nine months old had a prepyloric ulcer causing obstruction which was relieved with medical therapy. However, during the following four years she had three additional episodes of partial pyloric obstruction. The other seven patients were treated medically and had been symptom free during a five-year follow-up period. The patient who had been subjected to gastrectomy later required, at the age of 21 years, a transthoracic vagotomy for a marginal ulcer. No symptoms developed during the subsequent 10 years. The authors point out that many of these patients treated medically may require surgical treatment later on, and they also comment on the fact that many patients who are diagnosed as having a peptic ulcer during adult life have symptoms going right back into childhood. They state that additional long-term follow-up studies of children with peptic ulceration are desirable to determine whether the ulcer diathesis is severer in young patients.

Funnel-Chest: Its Effect on Cardiac Function.

R. HOWARD (*Arch. Dis. Childh.*, February, 1959) discusses the question of post-operative improvement in exercise tolerance on the basis of 90 cases of funnel-chest observed both before and after operation, and concludes that exercise tolerance is improved in a high percentage of cases. He states that the heart is frequently compressed by the sternum in cases of funnel-chest, that marked deformity and diminution of the capacity of the right ventricle may thereby be produced, that failure of cardiac output to increase with exercise has been demonstrated in at least one such case, and that relief of both cardiac deformity and exercise intolerance has been proved to follow operation. This is sufficiently suggestive of interference with cardiac function to place the onus of proof upon those who deny its occurrence. The important question remains as to how frequent is this occurrence. The author's impression, based on the clinical improvement in the early post-operative period, is that interference with cardiac function is common, and may be confidently expected to be corrected by the routine operation performed for funnel-chest.

Congenital Bladder-Neck Obstruction in Children.

G. W. LEADBETTER AND W. F. LEADBETTER (*New Engl. J. Med.*, March 26, 1959) state that congenital bladder-neck obstruction is a common and potentially serious pædiatric and urological problem. Unrecognized and untreated, this pathological abnormality leads to vesical and upper urinary tract changes, and ultimately to progressive renal destruction and death. The explanation for the development of this obstructive lesion appears to be a fault in dissolution of mesenchyme at the bladder neck, or the inclusion of abnormal amounts of non-muscular connective tissue. Symptoms and signs of bladder-neck obstruction include enuresis, frequency, small or intermittent urinary stream, hæmaturia, pyuria, residual urine and fever due to acute pyelonephritis. Residual urine obtained by catheterization is a necessity for the evaluation of children suspected of having disease of the urinary tract. It is well to remember that the urinary stream may appear large and forceful even in the presence of residual urine and palpable bladder. Residual urine is abnormal, and when present may be the confirmatory evidence that operative correction is indicated. Delayed and voiding cystograms often help in the diagnosis of bladder-neck obstruction by demonstrating a narrowed outlet with a very narrow, short funnel at the bladder neck. Cystoscopy may reveal a thick bladder wall, trabeculation, cellule formation or even diverticula—all confirmatory signs of obstruction. Bladder neck abnormalities may be visualized only with a panendoscope. In the presence of persistent urinary tract infection, residual urine and demonstrated bladder neck abnormality, reparative surgery is indicated. The authors prefer the retropubic Y-V bladder neck plastic procedure.

Adrenal Hæmorrhage in the New-Born.

M. DUMONT (*Presse méd.*, January 24, 1959) discusses hæmorrhage of the adrenal capsule in the new-born, on the basis of five cases in which autopsy was performed. He states that such hæmorrhages are fairly frequent among visceral hæmorrhage of the new-born. The only ones to be considered are severe hæmorrhages associated with destruction of the gland and sometimes a coexistent periadrenal hæmatoma. Among the causative factors are obstetric trauma, anoxia, prematurity, neonatal infections, etc. The clinical signs are not specific; the diagnosis should be considered when the clinical picture is one of shock and a lumbo-abdominal mass is present. Treatment is primarily prophylactic—prevention of anoxia and trauma, and administration of vitamin K. Curative treatment comprises the administration of adrenocortical extract, blood transfusions and the exhibition of vitamin K and vitamin P. Surgical intervention may be indicated when a firm diagnosis is made.

Clinico-Pathological Conferences.

A CONFERENCE AT SYDNEY HOSPITAL.

A CLINICO-PATHOLOGICAL CONFERENCE was held at Sydney Hospital on October 21, 1958. DR. W. L. CALOV, Honorary Consultant Physician, was in the chair. The principal speaker was DR. J. N. SEVIER, Honorary Assistant Physician.

Clinical History.

The patient complained of pain in the chest and breathlessness. He was 56 years of age, and had lived all his life in "sheep country". There were no relevant illnesses in his family, and except for attacks of asthma over the past 14 years and occasional indigestion, he himself had been well till five weeks before his admission to hospital. A non-smoker, he drank but little alcohol.

While lifting a heavy weight he experienced a tearing sensation in his chest, just to the left of the sternum, with pain and dyspnœa for two minutes followed by a dull ache. Thereafter the pain persisted, unrelated to breathing or coughing; he was mildly dyspnœic, and he frequently spat up small amounts of blood-stained sputum. He had no swelling of his ankles. The trachea was thought to be deviated towards the right and the chest emphysematous with scattered rhonchi, and at the base of the right lung the movement was poor, the percussion note was hyporesonant, breath sounds were diminished and the vocal resonance was less than normal. There was no clubbing of the fingers or cyanosis. The blood pressure was 120/80 mm. of mercury, the apex beat was not palpable, the heart sounds were faint and there was no œdema.

The results of investigations were as follows: the hæmoglobin value was 15 grammes per 100 ml., the erythrocyte sedimentation rate was 5 mm. in one hour, the white cell count was 10,000 per cubic millimetre (neutrophils 39%, eosinophils 15%, basophils 1%, lymphocytes 37%, monocytes 8%). The Wassermann, Kahn and Casoni tests produced negative results. The result of the complement fixation test was positive. The sputum contained epithelial squames and a profuse mixed flora, but no acid-fast bacilli. A mixed growth with scanty *Aerobacter* grew in culture; it was resistant to penicillin, but sensitive to other antibiotics. X-ray examination of the chest showed "an area of condensed lung near the right base, probably in the vicinity of the middle lobe, of uncertain nature but carcinoma might be suspected". An electrocardiogram showed left axis deviation, a myocardial defect and supraventricular premature beats.

Subsequently a bronchoscopy and then thoracotomy were performed, with removal of the sixth right rib posteriorly. Incidentally to the main attack on the right lung, some emphysematous bullæ were incised. After the operation, the patient had a rise in temperature and some subcutaneous emphysema, there were troubles with the drainage tubes and he was given penicillin, streptomycin and breathing exercises. The right lung failed to reexpand, some air was removed from the pleural cavity (the pressure was +5 to 0 cm. of water) and on three occasions thick mucopus was aspirated through a bronchoscope. Before his death on the eleventh post-operative day he developed tachycardia (130 per minute) and shallow, rapid, gasping respiration, but no apparent cyanosis. The blood pressure rose to 180/110 mm. of mercury, but fell to 110/60 mm. of mercury on the last day. Terminally he was given oxygen and noradrenaline.

Clinical Discussion.

DR. J. N. SEVIER: I shall try to dispose of this very interesting case fairly quickly, Mr. Chairman, for two reasons: firstly, there are some very competent speakers to follow me, I am sure, including the pathologists and the honorary thoracic surgeon, and secondly I am quite unsure as to what the answer is. Hence my haste.

I will deal with some of the possible causes of this man's illness. What the story boils down to is that a male, aged 56, a known asthmatic, who has lived a good deal of his life in "sheep country", has a positive hydatid complement fixation test, 15% of eosinophils in 10,000 white cells, recurrent hæmoptyses and a shadow in his lung. These facts could make the case look easy: I hope it is. Apart from asthma, the only other symptom in his past history is indigestion — what a delightfully vague term that is! It could be the crux of the case. Indigestion can cover anything from morning sickness to the dyspepsia induced by painful ingrowing toenails. We also note that he was a non-smoker who drank very little alcohol.

What was this tearing sensation five weeks before admission? Possible causes must be somewhat limited. However, it is not a very accurate medical description and it does not pinpoint a lesion for us. A tearing sensation, dyspnœa and hæmoptysis — none of these had been present before. Perhaps hæmoptysis is the most definite of these. I can well remember being taught as a student that there were in Australia five main causes of hæmoptysis — tuberculosis, bronchiectasis, mitral stenosis, hydatid cysts and cancer of the lung, in that order. This may not apply so the wane, fortunately; for hydatid cyst one has to look well today, as tuberculosis is dwindling; advanced mitral stenosis is becoming increasingly rare; bronchiectasis is on long and hard; but cancer of the lung is on the increase. The order of frequency has well-nigh been reversed. And I think we have to consider that this man, even though a non-smoker, and without finger clubbing, has a neoplasm in his lung till we prove he has not. Whether or not that was the opinion of the surgeon I do not know, but it could well have been the principle on which he worked.

Coming to the X-ray pictures we see before us, the appearance narrows the field. It is unfortunate we have only two postero-anterior views, separated by about eight days, and we do not know whether he was treated in the interval between these films, or whether he was febrile. But he had been having a dull pain, some dyspnœa and recurrent hæmoptysis. There is no lateral view and no oblique or lordotic views. I, myself, cannot see any evidence of a pneumothorax in either film, so I exclude that from our discussion. But I am intrigued by the very marked mediastinal shift towards the right; for the amount of pulmonary lesion evident there is an unusual degree of shift towards the affected side. There is no evidence of a lesion on the left pushing the mediastinum towards the right, and hence one must presume there is a lesion on the right bringing the mediastinum across. I am excluding a congenital anomaly. It would be helpful if we had some other view. The radiologist's report is truly a typical one; it is on a par with the report on the electrocardiogram, of which I regret I was apparently the author, and in which we find another lovely term, "myocardial defect", which is as helpful as "indigestion" or even "nerves". So the report on the X-ray picture does not help us a great deal. You can see the shadow to which it refers on the right side, and in the absence of any further information one must presume that it is possibly the middle lobe. Perhaps it is a pneumonitis or, allowing for the mediastinal shift, atelectasis of the middle lobe; but, personally, I have never seen such a marked shift in this condition. It could be the superior segment of the right lower lobe; but again, for a segmental collapse, there is an unusually gross mediastinal shift.

If one thinks of a lesion of the right middle lobe, one must think of the so-called "middle lobe syndrome" which has leaped into favour over the last ten years. Graham and his colleagues put a name to it in 1948, and, like hamartoma, it is a term which every student seems to know. Did something occur which gave him a sudden collapse of his right middle lobe and a shift of his mediastinum, causing the tearing sensation which he felt in the left side of his chest? You will note there is no record of shock at the onset, which one might have expected. Anyway, I suggest that the right middle lobe collapsed five weeks before admission. As you know, the right middle lobe bronchus lends itself well to extrinsic pressure from lymph nodes or other structures, as the bronchus is relatively long and narrow and comes off the stem at an acute angle. Blockage could be due to an intrinsic lesion, such as mucosal œdema, fibrosis or, possibly more likely, mucoid plugging or impaction—remember, he is an asthmatic, and mucoid impaction is not uncommon in asthmatics. Lifting the heavy weight may have caused some shift of a mucoid plug leading to blockage. Next in the intrinsic causes is tumour — and we are going to regard this as a tumour till it is proved otherwise — either benign or malignant. If benign, it could be adenoma or papilloma — if malignant, carcinoma. Or could there be a foreign body? Maybe; but there is no history which is suggestive of it. Extrinsic cause of compression of the bronchus is usually a lymph node, the causes of enlargement of which are legion, or a tumour of any sort. So, in my mind, I think of collapse of the middle lobe due to any of a wide variety of causes.

There are other features which may help us. We know that after coming to hospital his hæmoglobin was normal, the sedimentation rate was not increased but there was an eosinophilia. Then there was a positive complement fixation test for hydatid, and he was a sheep man; but the Casoni was negative. I understand that the Casoni reagent is not always reliable, and the intradermal test does not always produce a response even in the presence of hydatid. On the other hand, the complement fixation test is appar-

ently more sensitive, but can give rise to false positives. We can take our pick. Sputum examination does not help us, except negatively; apparently there were no fungi or significant pathogens.

Then bronchoscopy was done, and presumably something was seen which led to thoracotomy. I think it was related to the right middle lobe bronchus — constriction, bronchostenosis or some mass either within the bronchus or pressing on it from without. Anyway, it led to thoracotomy and then the trouble started, with which I do not propose to deal. But it is of interest to note that some emphysematous bullæ were incised, as an encore. Presumably some portion of the lung was removed; we do not know whether it was a lobe, a segment or an isolated lesion. Some lung tissue was left, for it failed to reexpand.

Let me recapitulate. It is hard to go beyond hydatid cyst. However, these cysts, in my experience, do not cause pressure symptoms. In this case the cyst would have had to compress the bronchus. However, I wondered whether it was a diagnosis of hydatid cyst which led to this thoracotomy. Neoplasm we cannot overlook. He is in the common age group, and bronchogenic carcinoma is high on the list. Lymph-node pressure must be suspected. This left hilum is not beyond suspicion. Has he one of the reticuloses — Hodgkin's disease or lymphoma — causing this pressure? Or sarcoid, whatever that is? Could it have been a hamartoma pressing on the bronchus? That is unlikely. Then there is mucoid impaction, plugging, in a known asthmatic leading to distal atelectasis. However, the surgeon would have been unlikely to operate for this. Tuberculosis I have not mentioned because I do not think this case is an inflammatory or infective condition. The apices are clear. Not finding the bacilli in one specimen of sputum is not proof positive. Eosinophilia is not a feature of tuberculosis, but may well have been associated with his asthma. Lack of increase in the sedimentation rate, while compatible with tuberculosis, is a point against bronchogenic carcinoma. In our experience here in the pulmonary clinic, the sedimentation rate is very frequently increased in carcinoma. Nevertheless, the normal rate and the lack of clubbing and smoking do not negate the possibility of carcinoma. Löffler's disease, pulmonary eosinophilia, may have been in mind when they repeated the X-ray examination after eight days, but there is nothing to clinch the diagnosis. Then, from the back of the mind, I wonder whether he suffered a diaphragmatic rupture with protrusion of some of his intestinal contents into the thorax causing shift of the mediastinum. If you look hard enough at the X-ray films you can see all sorts of things. That is the last and roughest of the possibilities; though there is nothing very definitely in favour of it in the X-rays. There could be a left-sided tear in the diaphragm.

To sum up, one must consider that there is a space-occupying lesion — hydatid, neoplasm — causing disturbance of his right middle lobe, and that some sign of it was seen at bronchoscopy, leading to his thoracotomy.

DR. W. L. CALOV: Would anyone else care to contribute to the discussion? By the way, what is the time interval between the initial onset of tearing sensation and this first radiograph?

ORGANIZER: Five weeks.

DR. B. M. HURT: I think your comments are very relevant. The history suggests he might have had a small pneumothorax which cleared up before the X-ray film was taken. He is emphysematous, and the film shows that his left lung is a very voluminous one, and perhaps his right one was similar before this consolidation or collapse of the middle lobe. I feel this is a solid lesion, and I cannot go beyond neoplasm. One has to consider mitral stenosis as Dr. Sevier suggested, and pulmonary infarct. The eosinophilia is not uncommon in an asthmatic. The complement fixation test suggests we are going to find a hydatid cyst. I think my idea of this case is like Dr. Sevier's, and various investigations could be suggested — bronchoscopy and lateral chest film would be mandatory, the omission being a serious one on the part of the physicians. The man may have needed thoracotomy to establish the diagnosis; but he would not have been a very good risk due to his emphysema and his myocardial connective tissue core, and only a very thin epithelial sur- a primary diagnosis, but major possibilities can be suggested. The appearance of the hilum is suspicious of metastases if a neoplasm is present. The original complication, pain and so forth, could well be minimized in what ultimately turned out to be a right-sided lesion; there seem to be two shadows to the right of the aorta which might represent minor mediastinal emphysema, but his major lesion appears to be a collapsed right middle lobe, and I think we are going to find either a hydatid or a neoplasm.

PROFESSOR W. K. INGLIS: Might I ask that Dr. Walsh should give us his views on the eosinophilia? Is the 15% too high for a quiescent hydatid? Would it not mean that there was some sort of leak from the hydatid?

DR. R. J. WALSH: Well, sir, I am at a serious disadvantage, as I do not know what the eosinophil normally does. Nor do I know what it does when it increases in number, as occurred here. The latest of very many theories about the function of the eosinophil suggests that the eosinophil is the blood cell which collects and then transports foreign antigens to the reticulum cell of the bone marrow and of the reticulo-endothelial system generally. It is then ingested by the reticulum cells, and these change into plasma cells to manufacture antibodies. If this theory has any relevance, this patient could be producing a large number of eosinophils in response to antigens from a leaking hydatid cyst. His asthmatic condition could also be responsible for the increased number of eosinophils, but the number is rather high. I really think this comment on eosinophilia is in the same category as Dr. Sevier's on the electrocardiogram and the radiologist's on the X-ray films.

MR. M. P. SUSMAN: If this is a hydatid cyst, then the X-ray appearance would suggest it has burst—and that would account for the eosinophilia—for it is not the typical picture of a hydatid cyst. I do not agree with Dr. Sevier's comment that hydatids do not cause pressure. They can cause so much pressure that they can erode ribs, the aorta and vertebral bodies; and they can erode the bronchus and burst into the bronchial tree.

DR. W. L. CALOV: Why do you say this might be a ruptured cyst?

MR. SUSMAN: Because it is not well defined. A virgin hydatid cyst as a rule has a well-defined border. More likely, I think that it is necrotic neoplasm.

DR. CALOV: It seems to me that the mediastinal shadow is narrow, and it makes me wonder whether air might not have found its way there. Surgical emphysema and mediastinal shift could have accounted for his pain, and also for the abnormality in width of the mediastinal shadow. The shift has laid bare the pulmonary artery on the left side. I would think that malignant disease was unlikely, because I have never seen one in which the erythrocyte sedimentation rate was normal. I think hydatid is the more likely diagnosis. Is there any record of his having had pain on swallowing?

ORGANIZER: No.

DR. CALOV: The tearing sensation could have come from the rupture of an emphysematous bulla.

DR. SEVIER: I would like to reply to Mr. Susman. I might have given the wrong impression. I was not inferring that hydatids do not erode—I am well aware that they erode bronchi. But that is more common than the production of stenotic effects, is it not? However, if this did erode a bronchus, I feel he should have coughed up something.

DR. SUSMAN: It is surprising how many patients with proven ruptured hydatid cyst have no recollection of coughing up fluid or membrane.

DR. SEVIER: Mention was made of pulmonary infarct. I did consider it, but there is no evidence of it in the electrocardiogram, and I have never seen it cause this degree of mediastinal shift.

Pathologist's Report.

DR. A. A. PALMER: Bronchoscopy showed œdema, and the right main bronchus was almost occluded during expiration by a smooth, pale mass which moved up and down with respiration. The mass appeared to be attached by a peduncle to the wall of the right upper lobe bronchus. A small piece was removed, but it was not possible to make a satisfactory section. At thoracotomy it was noted that there were emphysematous bullæ on the right upper and lower lobes. An incision was made into the right lower lobe bronchus, and this incision was lengthened to explore the upper lobe bronchus. A papillary tumour was found and excised. It did not appear to be invading the wall, and was attached to the wall of the right upper lobe bronchus.

Low magnification of the section shows it to be a polypoid tumour with a papillary surface, quite a lot of connective tissue core, and only a very thin epithelial surface. Under higher magnification you can see that the epithelium is confined to the surface, that it is thin and consists mostly of the normal pseudostratified columnar ciliated epithelium of the respiratory tract, but some parts are squamous. This was considered to be a benign papilloma of the bronchus.

Tumours of this type are not very common; they are sometimes multiple, and are similar histologically to those in the larynx. In this instance the papilloma was single and benign.

At autopsy a healing wound was noted on the right side of the thorax with two drainage tubes. The trachea was deviated slightly to the left and contained thick viscid mucopus. The left pleural cavity was normal; the right contained air under pressure. The right lung was completely collapsed and was adherent to the diaphragm. There was no free fluid. The anterior drainage tube was not actually located in the pleural cavity at the time of autopsy, but the place where it had been was seen after removal of the collapsed lung, and it, too, had been surrounded and blocked by adhesions and dense fibrin. There was thick pus in both bronchi and their smaller branches. There was mild atheroma of the coronary arteries. No other significant features were found except marked congestion of the duodenum and upper jejunum, which may have been a manifestation of shock.

In summary then, there was a benign papilloma of the right upper lobe bronchus; thick mucus in the trachea and bronchi such as is found in asthma; a tension pneumothorax on the right side with collapse of the right lung associated with occlusion of both drainage tubes; bronchiolitis; and adhesions between the right lung and diaphragm, probably indicating an old inflammatory lesion.

DR. CALOV: I wonder why, in the light of the findings, he had that shadow in the region of the middle lobe.

DR. SEVIER: I think it is only fair, since we as clinicians have to relate signs and symptoms to pathological lesions, that the pathologists should tell us how their lesions produced what we could see.

DR. PALMER: Although this papillary tumour was attached to the upper lobe bronchus, it was movable, and it could block the middle lobe bronchus as well as others from time to time.

DR. CALOV: Would you, as our Thoracic Surgeon, comment, Mr. Ferguson?

MR. W. FERGUSON: I have an easy job really, for I have read all the notes and the post-mortem report, so my remarks must be suspect, and, of course, it is extremely easy to be critical in retrospect. The first thing I would like to say is how much I enjoyed listening to Dr. Sevier; it was a masterly analysis of the case. Clinically, in retrospect at any rate, it should have been an easy case to diagnose. The patient had pain and hæmoptysis; he would come to hospital where a chest X-ray film would show there was no pneumothorax, and after that, possibly next morning, he would be bronchoscoped and the diagnosis would be made. It was either an adenoma or a carcinoma, and there the matter ends — diagnosed even before the blood count comes back, so the eosinophilia would not have confused the picture.

After operation, as you can see in these films, he had a large air space on the right side with some atelectasis of the lower lobe. An anterior and a posterior intercostal drainage tube had been inserted at the end of the operation, and for a few hours immediately after the operation the anterior lobe had been bubbling. At 10.30 p.m. on the night of the operation the anterior tube was found to be kinked, and after unkinking it oscillated but no longer bubbled. At 11.45 p.m. the posterior tube was found to be no longer working. So one or both of these tubes were blocked within a few hours of operation. In these circumstances it is necessary to take an X-ray film to see whether or not the lung is still expanded. If it is not expanded and there is a pneumothorax present, as in this case, something must be done. An attempt should be made to get the tubes working again, and if this is unsuccessful they should be removed and a new one inserted into the air space. Unfortunately, the old tubes were left in position in this case until the time of death on the eleventh post-operative day, and at post-mortem the anterior one was shown to be in the air-space, but it was blocked and was serving no useful purpose. And so the lung did not expand. There are two reasons why a lung does not expand after a chest operation. Either there is a pneumothorax, such as was present here, or else it cannot expand because the bronchi are filled with secretions. In this case both these factors operated. He was bronchoscoped for the first time on the seventh day, again on the tenth, and again just before death. It is likely that he had quite a lot of secretions during the first week of operation, although this is not recorded.

There is one thing which residents looking after surgical thoracic cases must learn, and learn early, and that is the likely cause of non-expansion of the lung. Subcutaneous surgical emphysema was another clue in this case. He developed a tension pneumothorax just before death, with complete collapse of the right lung. Probably the leak opened up, more air came into his pleural space and, together with sputum in the bronchus, caused complete collapse of the lung.

He was a man of 56, he had asthma and emphysema, and had a major thoracic operation and died eleven days after operation from respiratory insufficiency. Normally his blood pressure was 120/80 mm. of mercury, but on the morning of his death he was found comatose and, now, here is the important point. His respiratory rate was 44 per minute, he was not cyanosed and his pulse rate was 130 per minute and his blood pressure was 180/110 mm. of mercury. All that indicates carbon dioxide retention. He had carbon dioxide retention because of alveolar hypoventilation, and the only way to overcome that is to ensure proper ventilation — get rid of all secretions and then use a respirator, or, what may sometimes be enough, do a tracheotomy. I have done tracheotomy on two occasions in patients unconscious due to respiratory acidosis, and on both occasions the patient has regained consciousness immediately after the tracheotomy and sucking out his bronchial tree. Tracheotomy cuts down the resistance to the inspiration and expiration and reduces the dead space.

One other interesting point is that on the day of death the man was unconscious at 7 a.m. and was very "wet", but was not bronchoscoped till 10.30 a.m. Presumably no one was available at 7 a.m. to bronchoscope him. A most important part of the care of thoracic surgical cases is that there must be a resident available at all times, 24 hours a day and seven days a week, who understands the management of tubes, who can put a tube in when indicated and can bronchoscope a patient. This has to be done immediately — there is no time to send for someone from five or ten miles away. The resident must be able to carry out frequent tracheal toilet — encouraging the patient to cough, or better still, to pass a urethral catheter blindly through the nose and down through the cords and suck out that way. There are two main principles in the post-operative care of this type of patient — keep the lung expanded and keep the airway dry. Unless these are done, it is impossible to get good results in pulmonary surgery; it is not the technical side which is difficult, it is the post-operative care which is so important. This means having residents available at all hours of the day who are trained in the management of this type of case.

Facilities should also be available to measure arterial oxygen saturation and estimate blood pH and pCO_2 on this type of patient. Just before death this man's pH would certainly have been lowered and his pCO_2 raised. The last thing is the value of pre-operative lung function studies. These were not done in this case. This man of 56, a known asthmatic and bronchitic and emphysematous, was obviously not a good respiratory subject. You may say that he would probably survive on one lung. But the point is that he did not. The left lung looks reasonably healthy on the X-ray film, but it was not good enough to keep him alive in association with the right pneumothorax, the atelectasis of the right lower lobe and the "wet" bronchial tree. Respiratory acidosis developed and the tension pneumothorax was the last straw.

Diagnosis.

Benign papilloma of the bronchus.

British Medical Association.

NEW SOUTH WALES BRANCH: SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on December 11, 1958, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney, SIR WILLIAM MORROW, the President, in the chair.

Dyspepsia.

DR. S. J. GOULSTON read a paper entitled "Dyspepsia" (see page 867).

MR. J. M. YEATES read a paper entitled "Dyspepsia" (see page 869).

DR. H. P. GREENBERG, in opening the discussion, said that at the present time the psychiatrist could not discuss psychogenic dyspepsia with the admirable precision demon-

strated by Dr. Goulston and Mr. Yeates. To start with, the theoretical position of psychosomatic conditions remained unsettled. That, in fact, reflected the generally unsatisfactory state of contemporary psychiatric theory. Another difficulty was that the average psychiatrist saw only a very selected group of those patients, often referred as a last resort after extensive physical investigation and treatment. That made research difficult, especially as the psychiatrist was under pressure to produce a cure; that fact often drove him to resort to means which, whatever their therapeutic merits, did not further insight into the origin of such conditions.

Dr. Greenberg went on to say that a considerable number of approaches had been attempted in the study of those conditions. Two of the most popular had been the attempt to correlate personality types or "profiles" with specific psychosomatic diseases or symptoms, and such concepts as "areas of focal conflict" and "specific emotional situations". Those approaches were now being recognized as fallacious, if only because the difference between various personality "profiles" diminished as they were applied to more and more diseases. Similarly, for example, when it was stated that an undue craving for infantile dependence on the mother was the "specific focal conflict" in cases of asthma, peptic ulcer, eczema and tuberculosis — since extended by Sperling to "every case of psychosomatic disease" — scepticism was inescapable.

Dr. Greenberg then said that time prevented a full survey of the field, but that he wished to draw attention to the views of Ida Macalpine of St. Bartholomew's Hospital. She pointed out that psychosomatic symptoms must be clearly differentiated from psychoneurotic symptoms, with which they were often confused. As Mr. Yeates had remarked, many patients with psychosomatic symptoms could not be shown to have conflicts such as could be demonstrated in psychoneurotic patients. The psychoneurotic symptom expressed a conflict or idea, often in symbolic form. It was a compromise formation between unacceptable impulses and repressing forces. It was based on comparatively mature mental mechanisms, and a variable measure of secondary gain was extracted from the environment. The psychosomatic symptom, on the other hand, might be defined as rudimentary, disguised, somatically expressed emotion or fantasy; the patient was unaware of the emotion or fantasy expressed in his symptoms. The emotion achieved only partial expression, so that instead of leading to action and thus subsiding, it persisted. It was that persistence which produced pathological changes — in other words, the symptom. It was thus more primitive than the psychoneurotic symptom, being characterized by the partial break-through and persistence of an unconscious emotion or fantasy in the guise of a somatic symptom.

Dr. Greenberg finally said that eventually it should be possible to establish clear diagnostic criteria for psychosomatic symptoms, thus avoiding the circuitous process of diagnosis by exclusion of organic disease, though at present in many cases that was difficult. It was worth adding that, contrary to prevalent views, patients with psychosomatic symptoms responded to adequate therapy more easily and quickly than did psychoneurotics. But the type of psychotherapy must be different; such patients were made worse, even psychotic, by methods which forcibly released still more unconscious material, as did, for instance, abreactive techniques. The object was rather to help the patient to understand, deal with and eventually re-repress the unconscious material which had broken through.

DR. K. S. JONES referred to the problem of diagnosis. He said that if one was to make a definite line of treatment it was necessary to make a reasonably definite diagnosis. Since dyspepsia was almost the commonest of presenting symptoms, how far must one go with diagnostic investigations? Should one proceed, if necessary, to laparotomy? He thought that a radiological examination should be made first. The question then arose how far one was to proceed with radiological investigations, since the dangers of radiation were now well known. Full radiological investigation might consist of X-ray examination after a barium meal and a barium enema and cholecystography, one after the other, in the hope that one test would give the required evidence. If a patient returned a few years later with the same symptoms, was one to go through the whole thing again? He thought it was necessary to do so to exclude organic disease. However, there was the point of view that since organic disease was not the commonest cause of dyspepsia, one might take a calculated risk. Dr. Jones asked what was the appropriate line to take with the patient who presented at intervals with dyspeptic symptoms.

Dr. Goulston, in reply, said that he agreed with Dr. Jones that the choice of investigations was difficult. One had to make different decisions in individual instances. On most occasions one was forced to investigate the patient, because it was necessary to make a definite decision. The answer might lie in much more careful and longer history-taking. One had to have time to get a true history. If the patient was presenting for the first time, it was necessary to carry out investigations. If the patient had been in one's care for a period of time, further reinvestigation was not necessary unless there was an alteration in the character of the symptoms. However, any patient over the age of 35 to 40 years presenting for the first time with dyspeptic symptoms should be investigated fully.

DR. J. R. SANDS said that he had been interested in the table of 100 cases of dyspepsia shown by Dr. Goulston, in 10% of which the diagnosis of functional dyspepsia had been upheld. Dr. Sands said that it was a very common label a few years earlier, and it had meant a complicated diet, the giving of a rather secret prescription, and probings into the patient's married life. That procedure had created much dependence on doctors. Patients nowadays knew a great deal about cholinergic drugs and about appropriate diets. The public had developed some self-reliance in dyspepsia, as it had in relation to coughs, headaches, etc., and very seldom sought the doctor's help. That was why the figure of 10% was so low. Dr. Sands believed that when patients went to the doctor with symptoms of dyspepsia there was a very good reason. Clinicians should keep that in mind. As for the label functional dyspepsia itself, it was one that could be put on by the psychiatrist or the experienced gastro-enterologist; but as for the rest of the medical profession, the condition was better labelled dyspepsia, cause unknown.

DR. C. RADESKI also referred to the table shown by Dr. Goulston. He said it was surprising that gastric ulcer headed the list, followed by duodenal ulcer, and that functional dyspepsia was further down. He wondered if that was a statistical displacement. The cases at the Gastro-Enterological Unit at the Royal Prince Alfred Hospital were selected, because the patients were referred by practitioners or by other clinics, etc. Dr. Radeski very much doubted whether general practitioners would agree that only 10% of patients presenting with dyspeptic symptoms had functional dyspepsia. He suspected that the numbers were far larger, for many patients would be referred to other specialists, psychiatric units, etc. He thought the figure would be nearer 70% or 80%. As Dr. Greenberg had said, some of the patients were not neurotic, since they did not have a multiplicity of other symptoms. They had dyspepsia only. He thought that the figure in a psychiatric clinic would be 40% to 50%. He wondered whether the figure of 10% was true of the population at large.

DR. B. P. BILLINGTON said that he had recently gone through the barium meal X-ray reports at the Royal Prince Alfred Hospital on 1200 out-patients referred for various reasons from various practitioners. Of those patients, 70% were found to have no abnormality; of men, some 20% had duodenal ulcers and 5% had gastric ulcers. Dr. Billington said that he had been surprised that Dr. Goulston had not mentioned pulmonary diseases such as tuberculosis, bronchiectasis, etc., the symptoms and signs of which might give very little clue that the lung was the source of the dyspepsia. Diagnosis was difficult in the abdomen. The patient might give a story that the clinician could interpret fairly well as suggesting spastic colon, although organic disease was later found to be present. From the psychosomatic point of view, the acceptance of a stress situation as the cause of symptoms did not always take into account the fact that interrogation along those lines would reveal skeletons in everybody's cupboard.

DR. HELEN TAYLOR referred to the problem of gastro-intestinal allergy. She said that it was discussed by many American authors, but was not mentioned by the British. She asked Dr. Goulston whether he considered that the condition existed as a cause of dyspepsia.

Dr. Goulston, in reply to Dr. Taylor, said that he could only say that they were unable to diagnose intestinal allergy as a cause of dyspepsia very often. It was common knowledge that particular foods might produce intestinal allergy, but in his experience intestinal allergy was an uncommon cause of dyspepsia. Dr. Goulston thanked Dr. Billington for reminding him of pulmonary disease as a cause of dyspepsia, and said that he should have mentioned pulmonary tuberculosis and bronchiectasis. Referring to the comments that had been made on the table that he had presented, Dr. Goulston said that the cases were a random selection and really the figures meant very little. Dr. Sands's comments were very true. Perhaps in general practice a large proportion of patients presenting with dyspepsia were not suffering from organic diseases. An interesting problem was the association of superadded hysteria with organic disease. Dr. Goulston then described

two cases. The first was that of a man with carcinoma of the pancreas and the second that of a woman with gastric ulcer penetrating the diaphragm. Both had true superadded hysteria. The man with carcinoma of the pancreas was inoperable, but the woman had been entirely transformed after gastric resection.

Dr. Greenberg said that the point raised by Dr. Goulston was an interesting one. Physical illness was one of an infinite number of experiences which might activate intrapsychic conflicts, which the individual then attempted to resolve through hysterical symptom formation. With it went the secondary gain which the hysterical symptom itself brought. Possibly even more common was the occurrence of hypochondriasis—symptoms resulting not from conflict, but from the expression in somatic form of undischarged affect or unconscious fantasy—superimposed upon organic disease. That was the old distinction of *hypocondria cum* or *sine materia* familiar in the time of Sydenham and Willis.

DR. D. H. COHEN referred to Dr. Jones's question about the investigation of a patient presenting with symptoms of dyspepsia. Dr. Cohen said that his suggestion was to carry out regular examination of the fæces for occult blood. That could give some comfort to the diagnostitian and defer a large series of investigations. In reply to Mr. Yeates's remark on appendicitis, Dr. Cohen said that dyspepsia was very rare in children. It occurred in the older age groups and was nearly always a sign of organic disease. Dr. Cohen was in full agreement with Mr. Yeates that in children one should avoid a series of protracted investigations, especially radiological. All the accoutrements of radiologists preceded by a period of starvation tended to produce terror in juvenile hearts. When the symptoms were clear-cut, then operation should be performed at once. If the symptoms were less definite, then a policy of watchful expectancy should be pursued before investigations were carried out. In the vast majority of cases, the patient would at some stage show tenderness in the right iliac fossa. McBurney's incision should be employed, and unless the appendix was acutely inflamed, the terminal portion of the ileum should always be inspected; if the patient was a girl, a finger should be put down into the pelvis to palpate the uterus, Fallopian tubes and ovaries. It was disturbing to have a patient referred after an appendicectomy, still suffering the same pain, in whom a careful exploration had not been carried out.

DR. F. M. HOOPER said that if an X-ray examination of the stomach and duodenum only was carried out, radiologists did not screen the patients for long, and there was a very big margin of safety. One of the greatest objections to a barium meal X-ray examination was that it put the patient to considerable expense. If there was clinical justification for the expense, the minute risk could be ignored. Dr. Hooper believed that X-ray examinations of the appendix were unnecessary. If an appendix X-ray examination or a barium enema X-ray examination was required, it was impossible to carry that out without irradiating the ovaries. The testes could be shielded, but not the ovaries. Dr. Hooper considered that X-ray examinations of the appendix should not be ordered without some special reason.

DR. J. KERRIDGE asked where the air came from that was found in a spastic colon.

Dr. Goulston said that it was swallowed.

SIR WILLIAM MORROW, from the chair, said that a barium meal follow-through X-ray examination in his opinion had practically no value. He requested it only rarely.

Mr. Yeates said that it was gratifying to learn that at least one radiologist agreed about the doubtful value of radiological investigation of the appendix. To Dr. Goulston, Mr. Yeates said that he had been most interested in his comments on amœbiasis, and wished to ask him how effective was the modern treatment of this infestation, whether the relapse rate was high, and whether it would be feasible to embark on routine prophylactic treatment at fixed intervals. He thought that that disease smouldered in many a returned soldier, who might be parted from an excellent gall-bladder.

Dr. Goulston, in reply to Mr. Yeates, said that the position was similar to brucellosis; both were chronic relapsing diseases, and both had very many "cures". Emetine was probably still a valuable drug. It had been largely superseded by other drugs in intestinal amœbiasis, and in hepatic amœbiasis by chloroquine, which was much easier to use. No remedies were entirely effective. Dr. Goulston said that in Sydney the teaching hospitals were always looking for amœbiasis, but rarely found it.

Medical Societies.

PÆDIATRIC SOCIETY OF VICTORIA.

A MEETING of the Pædiatric Society of Victoria was held on October 8, 1958, at the Queen Victoria Memorial Hospital for Women and Children, Melbourne.

Obstructive Emphysema in an Infant Treated by Lobectomy.

DR. JOYCE DAWS presented the history of an infant who had been admitted to the Queen Victoria Hospital on July 1, 1958, aged 44 days. Her birth weight was 3 lb. 10 oz., and on admission she weighed 4 lb. 2 oz. Delivery had been normal, and respiration had been established spontaneously. She had been transferred from Robinvale Hospital because her doctor thought she had some atelectasis of the left lung, and because she had failed to gain weight.

On examination, the baby was noted to have an asymmetrical face, and the cranial sutures were closing. On the night of admission to hospital she developed a temperature of 101.6° F. and a brassy cry, and there was bilateral rib retraction, more marked on the left side, with signs of a mediastinal shift to the right. An X-ray examination of the chest revealed that the upper lobe of the left lung was emphysematous, and that there was a mediastinal shift to the right with collapse of the lower lobe of the left lung. A course of erythromycin was given, with good effect. One month later a marked expiratory wheeze with rib retraction on the left side was still present, and it was decided that surgery was required. On August 7, a left thoracotomy was performed under general anæsthesia, and at once the upper lobe of the left lung was seen filling the pleural cavity; it had not collapsed in the usual way when the chest was opened. The lower lobe had collapsed. A left upper lobectomy was performed by the dissection technique; an apical and basal intercostal drain was left *in situ*. The tubes were removed after four days, and convalescence was uneventful apart from some wheezing on the fourth day after operation, which was relieved by suction and "Alevaire". Pathological examination of the upper lobe of the left lung revealed emphysematous lung tissue, but the bronchi contained cartilage.

Dr. Daws then gave a review of the literature with special reference to ætiology, and it was noted that in many reported cases, as in that under discussion, no satisfactory cause for the bronchial obstruction had been found. Johnson and Forfar in 1958 had divided the possible causes into three groups: (i) congenital—for example, bronchial mucosal folds as described by Robertson and James in 1951, or bronchomalacia, in which there was a defect in the cartilage in the bronchial walls as described by Shaw in 1952; (ii) intrabronchial—due to the presence of a foreign body, mucus, mucosal swelling or tuberculous granulation tissue; (iii) extrabronchial—due to enlarged hilar glands or aberrant blood vessels. Dr. Daws said that Sloan in 1953 had reported four cases in which no specific cause was found, but it was thought that exact diagnosis had been difficult because the obstructing factor might have been included in the site of division of the bronchus. All reports agreed that lobectomy might be indicated as an emergency for those patients who might present with acute respiratory distress and cyanosis, although the occurrence of subsequent respiratory infections with development of further localized areas of emphysema in other lobes suggested that there might be a generalized affection of the bronchi.

DR. KATE CAMPBELL said she had been interested in the patient's dwarfism, and wondered if it might be related to an illness the mother had suffered during the fifteenth week of her pregnancy. It had also been interesting to note that the patient had had facial asymmetry and an abnormal right kidney.

A Preliminary Report on Attempts to Decrease the Still-Birth Rate in Erythroblastosis.

DR. ELIZABETH TURNER said that in a hospital the size of the Queen Victoria Memorial Hospital, Melbourne, dealing with over 5000 births per year, they were continually confronted with the problem of the Rh-immunized mother. The special problem was to know beforehand that a particular fœtus was threatened by death, and must be born prematurely in order to live.

Since the advent of the exchange transfusion, it could be said that nearly all babies born with erythroblastosis

of such a degree as to warrant treatment would survive and become healthy children; but the problem still remained of how to reduce the perinatal wastage brought about by death in utero of affected babies. Before exchange transfusions, the over-all wastage was said to be about 25% of all pregnancies in Rh-immunized women; the figure was considerably better now, approximately 16%, which was still far too high for complacency. For that reason, the obstetric staff had decided to send all such mothers to the one ante-natal clinic, under the direction of Dr. Marcia Robinson, so that methods of attempting to reduce the fœtal wastage could be evaluated with more accuracy. Dr. Robinson worked in close liaison with the pædiatric staff, who made recommendations about the necessity for and the optimum time of induction of labour. The pædiatric staff made recommendations; but the responsibility for the obstetric management and the life of the mother lay in the hands of the obstetrician, and that was no light task. Surgical induction of labour was always necessary, and the labour did not always ensue, so that the risk of Cæsarean section was one to be recognized when treatment was being evaluated. If there was some definite method by which one could predict with certainty those babies whose death probability was high, the problem would be simplified; but unfortunately there was no certain method. For instance, it was known that there was a grave risk to the Rh-positive fœtus of a mother who had suffered a fœtal death in utero. That risk was increased if the father was known to be Rh-positive and homozygous; but it was not always possible for the serologist to pronounce homozygosity or heterozygosity with certainty, owing to the lack of "e" sera. Then there was the problem of what to do in such a case if the father was known to be heterozygous. That should give a 50% chance that succeeding infants would be Rh-negative and unaffected; but unfortunately it was hard to predict beforehand, as there might be an anamnestic rise in the maternal antibody titre.

Dr. Turner then presented a preliminary survey or pilot study of work which was still proceeding, and which had begun 17 months before, in February, 1957. During that time, 67 Rh-immunized mothers had been delivered; 56 had living healthy babies, and 11 infants had died; six of them had succumbed to erythroblastosis in utero, and were stillborn. Dr. Turner was of the opinion that earlier induction of labour—even as soon as the 32nd week of pregnancy—might have saved some of them. Five infants had been born prematurely, but had died: two had died of erythroblastosis with œdema and hæmorrhage before the age of two hours, one had died soon after exchange transfusion, one had died at the age of eight hours with atelectasis, and one had survived operation for perforated bowel, but had died of pneumonia on the sixth day of life. Of 56 living babies, there were 47 affected babies requiring either exchange or simple transfusions. Dr. Turner said that she had herself followed up all those infants (except for three who had failed to attend), and so far their progress had been free of any evidence of neurological damage. The follow-up investigation consisted of weekly or fortnightly examinations in the out-patient department, with hæmoglobin estimation and neurological examination, and a modified Gesell testing to determine whether the developmental state approximated to the chronological age.

DR. MARCIA ROBINSON said that it had been the practice in the Queen Victoria Memorial Hospital over the preceding 18 months to induce labour prematurely in the majority of women who had been immunized to the rhesus factor, in an attempt to increase the fœtal salvage rate. That had been an obvious line of attack on the disease for many years, but had fallen into disrepute because of the high incidence of kernicterus of prematurity in the babies so delivered. Since that disease had been almost completely abolished by the use of exchange transfusion in the premature infant, induction of labour was again being used to try to salvage some of the babies who were affected by erythroblastosis, and who would die in utero if not delivered. They had had no known cases of kernicterus at the Queen Victoria Hospital in the preceding year.

Unfortunately, premature induction of labour carried many risks both to the mother and to the child, and therefore it was important to try to select those patients whose babies would die in utero unless they were delivered prematurely. It was that question of selection of patients for premature induction of labour that was occupying the thoughts of all who were responsible for the management of the Rh-negative woman.

At present the decision to induce labour was based on four things: (i) the past obstetric history; (ii) the husband's genotype; (iii) the antibody titre in the mother's blood; (iv) any other factors which might indicate that there was some placental insufficiency. Accurate details of all previous pregnancies, including maturity and maternal antibody titre at delivery, and if possible the Coombs reaction and hæmoglobin level of the cord blood, should be obtained. If there had been any stillbirths, it was important to know that they had been due to erythroblastosis and not to other obstetric causes, and also the stage of pregnancy at which the stillbirth had occurred.

If the husband was homozygous, it could be assumed that each successive child would usually, though not invariably, be more severely affected, and therefore labour would have to be induced progressively earlier in each pregnancy. It was important in those cases to watch the antibody titre carefully, as sometimes a woman might have had two or three untreated children, and then produce a severely affected baby, and therefore induction of labour only slightly earlier might be too late for that child. In the current series at the Queen Victoria Hospital there had been 29 homozygous husbands out of 67, and there had been three fœtal deaths in that group; in two of those three cases, the mother and father had the same A B O grouping, which, it was generally agreed, made the prognosis worse. When the husband was heterozygous, as had occurred 38 times in the series, the problem of management was much more difficult. At the present time there was no certain method of determining the Rh typing of the unborn child. Experimental work was being done on samples of liquor amnii obtained by amniotic tap. Sometimes that showed an increased bilirubin content if the baby was affected. It would seem that to obtain liquor by tapping the amniotic cavity through the abdomen should be a simple procedure, provided that the placenta was not encountered; but that was not so. Although the patients who had had a tap performed on them had not come to any harm, in only about 50% had any liquor been obtained, analysis of which had given no useful information and occasionally had been misleading, pointing to an Rh-positive baby who had turned out to be Rh-negative. Those 38 heterozygous husbands had given rise to only eight Rh-negative babies, so it would appear that at present it was safer to assume that the baby was Rh-positive. Probably some of those 38 men were in reality homozygous. However, at present they had no anti "e" sera at the hospital, and therefore it was impossible to type all the husbands completely.

It was generally agreed that estimation of the antibody titre by the indirect Coombs test, or by the use of Papain-treated cells, gave the most useful picture, and Dr. Rachel Jakobowicz was now using both those methods. Until the preceding three or four months they had been working on the blocking antibody titre, which was probably not quite so helpful. There was a swing at present to place much reliance on the antibody titre changes throughout pregnancy; but in reality the antibody curve was of use in only a proportion of cases, and in many it remained equivocal. From the results in the present small series, an increase of two tubes or more in the antibody titre in the first affected pregnancy should be regarded as a sign that the baby was affected, and premature induction of labour should be performed. If that had been done, at least one baby in the series would have survived, and because it had been done at least one baby had survived who surely would have died if the mother had been left to go into labour spontaneously. The antibody titre might rise by two tubes or more even though the baby was Rh-negative. That had led to a Cæsarean section for a "failed induction", the patient having had two affected children, one a still-born infant with hydrops. Another patient with a rising titre had narrowly escaped a Cæsarean section by delivering herself spontaneously, and again the baby had been Rh-negative. Some women who had a severely affected baby might have a drop in the antibody titre. In one case labour had been induced at 36 weeks because the fœtal movements had decreased, and the baby had been severely affected, with a cord hæmoglobin value of 74%. The titre had dropped from 1:250 at 20 weeks to 1:64 at 28 weeks, and had remained steady thereafter. In a number of patients a fall in the titre of two or more tubes seemed to indicate that the baby was being affected. At present, one could say that a definite rise in the antibody titre was strong evidence of affection of the babies; but unfortunately no change, or very little change, in titre did not mean that the baby was not being affected, and therefore estimation of the titre was of only limited use. The level of antibody titre was only a rough guide in predicting the severity of the disease in the baby. In the present series, of those with a titre of 1:64 and over of blocking antibodies there had been nine deaths, four Rh-negative babies, five untreated babies and 21 treated babies. Among those with a titre of less than 1:64, there had been two deaths,

four Rh-negative babies, 12 untreated babies and 12 treated babies.

The fourth factor influencing the time of induction of labour was any condition which was known to cause or be associated with diminution in placental reserve. Those conditions were hydramnios, pre-eclampsia or essential hypertension. Patients with only a mild degree of any of those conditions should be admitted to hospital and kept mainly at rest, and if the pregnancy had reached the thirty-seventh week or more, induction of labour should be performed. If the fœtus was small, then provided that the condition improved, the patient should be kept in hospital, and induction of labour performed as soon as the child was large enough. One had to put a great deal of reliance on the mother's appreciation of fœtal movements, and it must be obvious to everyone that a woman who had previously lost a baby or had a severely affected baby would be extremely apprehensive every time the child had a rest. Nevertheless, in some cases alteration in fœtal movements — a decrease in strength and frequency — was a reliable guide to impending fœtal death from anæmia, and an indication to terminate the pregnancy. Dr. Robinson said that in the present series she had been misled by the patients as often as not; but if that symptom had been ignored, a number of children would have died in utero, as it had been the only guide apart from the past history.

In 67 cases so far analysed, labour had been induced at term or prematurely in 54. In pregnancies over 36 weeks (39), there had been three stillbirths and one neo-natal death; in those at 35 and 36 weeks (seven), there had been no stillbirths and no deaths; in those at 34 weeks (three), there had been one stillbirth and no deaths; and in those under 34 weeks (five), there had been no stillbirths and three neo-natal deaths.

Artificial rupture of the membranes was performed; the hind waters were tapped first if the presenting part was not engaged, and then the forewaters were broken, in the hope that labour would start quickly. If labour was not established in 12 to 24 hours, an intravenous drip administration of "Pitocin" was started. By the use of that technique the majority of patients could be brought into labour sooner or later — it was important that "later" was not too late for the baby. If one was sure that the baby was severely affected, then Cæsarean section should be performed without delay if labour did not start. Of the 67 patients treated, nine had eventually been delivered by Cæsarean section, the indications being a transverse lie occurring after induction of labour in one case, prolapse of the cord in two cases, "failed induction" in five cases and fœtal distress in labour in one case. In the five cases of "failed induction" there were three Rh-negative babies, one of whom had died; in the other two they had been fairly sure that the child had been severely affected, and proved to be right. The case of fœtal distress was interesting since, although the mother had previously had affected children and her husband was homozygous, she had had no antibodies in the latest pregnancy, and the baby had required no treatment for erythroblastosis, and was Coombs-negative, Rh-positive.

From the obstetrician's viewpoint, the results were alarming because of the high Cæsarean section rate, which carried a real risk to the mother's life at the time, and was an added risk in each successive pregnancy. If induction of labour was practised, it was inevitable that the Cæsarean section rate would increase because of the risk of prolapse of the cord and the occurrence of malpresentations. Provided the indication for induction was good, that risk must be taken; but those sections performed for "failed inductions" were more worrying, and it would be nice to know that one was dealing with a severely affected baby that would die unless delivered. Dr. Robinson said that so far they had not had trouble with infection in either the mother or the child, even though the membranes had been ruptured up to 14 days before delivery occurred. All patients were given a course of chemotherapy as soon as the induction was performed (five days of penicillin and sulphonamide), and that was recommenced when labour started; it was probably of unproven value to the child and some help to the mother, and made the obstetrician feel better. The pædiatricians and obstetricians thought that they were working on the right lines to improve the fœtal salvage rate, but it was too early yet to assess the results to mother and baby of so much interference. If any method of determining the Rh typing of the fœtus in utero could be found, it would be the next major step forward in the management and treatment of those patients.

PROFESSOR L. TOWNSEND said that the very difficult subject under discussion was being approached along similar lines at the Royal Women's Hospital, but he was doubtful if earlier induction of labour was necessarily the answer. He thought that 34 weeks was the earliest time at which induction could be carried out with satisfactory results. He was alarmed at the high incidence of Cæsarean section in Dr. Robinson's series. At the Royal Women's Hospital, fœtal distress was the only criterion for performing that operation. He discounted the mother's statement that the fœtus was not well. He considered that the indirect Coombs test was most useful in helping to decide when to induce labour.

DR. J. GRANTLEY SHELTON said that the titre of total maternal antibodies gave disappointing results, but that he had great faith in the indirect Coombs test.

DR. E. MACKAY said that he was interested in amniotic tapping, and did not find great trouble in obtaining fluid. It should be analysed spectrophotometrically, as other pigments beside bilirubin were present. He thought that the method was of great value, and certainly gave better results than antibody tests.

Congresses.

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND: ANNUAL MEETING.

THE annual meeting of the Association of Surgeons of Great Britain and Ireland was held at London on April 23, 24 and 25, 1959. The meeting place was the Royal College of Surgeons of England, Lincoln's Inn Fields, and the President was Professor Sir James Paterson Ross, who is also President of the College for 1959. The Association is fairly exclusive, having only some 500 Fellows. Visitors may attend the meetings on the invitation of a Fellow, and there were representatives from several European countries, from U.S.A., from Australia and from New Zealand. A short preliminary ceremony was the presentation of the Moynihan Prize to Mr. J. A. Heslop of New Zealand, and the admission, as an Honorary Fellow, of Mr. Henry Searby (Melbourne), in his absence.

One morning was spent in a discussion on "Chronic Relapsing Pancreatitis". Professor C. F. W. Illingworth of Glasgow introduced the subject, and M. A. Birnstingl discussed the pathology, pointing out that necrosis of the gland, stone formation and ductal obstruction were all concerned in the pathology of the established disease. H. T. Howat spoke on the clinical diagnosis. He said that in advanced disease recurring pain, diabetes, steatorrhœa and calcium deposition might all be present; but at an earlier stage there might be no characteristic symptoms. Surgical treatment of chronic pancreatitis was discussed by Rodney Smith, with special reference to sphincterotomy; it was pointed out that no improvement could be expected if there were already irreversible changes in the pancreas. H. Doubilet, from U.S.A., dealt with complications, especially with the formation of cysts, not only in the pancreas, but also, as a result of the migration of pancreatic fluid along tissue planes, in the pelvis and in the mediastinum. He said that those cysts usually disappeared after sphincterotomy and drainage of the pancreatic duct. If a cyst in the pancreas was no longer connected to the main pancreatic duct, internal drainage by anastomosing the cyst to the jejenum was the best treatment. C. Puestow of Chicago explained the difficulties of treatment in the presence of a duct with many strictures. He said that in those circumstances sphincterotomy would fail, and recommended that the main duct be split longitudinally so as to divide the multiple strictures, and then anastomosed to a jejunal Roux loop attached along the whole length of the pancreas.

There were some useful short papers on different subjects. W. Burnett discussed the value of exfoliative cytology in the early diagnosis of cancer of the stomach, and suggested that it "should be available in all large centres for use in cases where carcinoma of the stomach is suspected clinically but cannot be demonstrated by radiology or gastroscopy".

There were two papers on amputation of the lower extremity for gangrene. R. Catterall spoke in favour of the Silbert below-knee amputation for gangrene of the foot; he emphasized that there should be no tourniquet, no suturing of the wound and no handling of the stump. There was some disagreement on these points, but all agreed that care should be taken to protect the heel of the other foot lest pressure gangrene be promoted, and

several recommended that the patient should be face down during the operation. P. Martin spoke in favour of the Stokes-Gritte amputation for gangrene in atherosclerosis; he said that its main virtue was that it usually healed by first intention, it was early suitable for fitting of a prosthesis and it gave good function. E. G. Muir discussed recurrence of symptoms after operation for carcinoma of the colon. In 15 of 53 cases there was recurrence at the site of resection, and some of those patients were suitable for further resection. In some cases simple ulceration, simple stricture or inflammatory adhesions were found to be the cause of the symptoms, and most of those patients could be completely cured.

R. B. Welbourn spoke about "Islet Cell Tumours of the Pancreas". He said that the symptoms depended upon whether alpha or beta cells predominated; with beta-cell tumours there were hypoglycæmic attacks, a low blood glucose level and relief by administration of sugar. Treatment was by excision of the tumours or by subtotal or total pancreatectomy according to the extent of the trouble; the results were good. Alpha-cell tumours caused extensive peptic ulceration in the stomach and sometimes in other parts of the alimentary tract; the ulceration was associated with hypertrophy of the gastric mucosa and very great hypersecretion of gastric juice. The essential part of treatment was removal of the pancreatic tumour. Total gastrectomy was sometimes necessary. Subtotal gastrectomy *plus* vagotomy failed to effect a cure unless the pancreatic tumour was also removed. A third group of pancreatic tumours contained both alpha and beta cells; there were usually other endocrine tumours also—e.g., in the pituitary and parathyroid glands—which might call for removal if they were producing symptoms.

The last day was devoted to short papers on "Modern Trends in the Treatment of Tuberculosis". It is significant that pulmonary disease was not discussed. H. G. Hanley dealt with genito-urinary tuberculosis. He said that adequate chemotherapy would cause a renal focus to heal; the healing process was often followed by pus formation and fibrosis. If a total pyonephrosis developed, nephrectomy or nephrotomy would be necessary. If abscess formation was confined to a calyx, it might drain satisfactorily into the urinary tract; if it did not, it should be drained surgically through the renal cortex (cavernostomy); that was better than partial nephrectomy. Stricture of the lower end of the ureter should be treated by early excision and ureteric reimplantation into the bladder before the kidney was destroyed. Active tuberculous cystitis responded well to chemotherapy, provided that it was started early; but when the muscle became involved, ileo-cytoplasty offered the best hope of relief.

Sir W. Mercier described the management of bone tuberculosis. He said that chemotherapy now allowed direct surgical attack on the lesion without, as in former days, sinus formation or spread of the disease. In early cases a mobile joint might remain. Extra-articular foci should be excised during chemotherapy. In synovial disease, early decompression would probably save the joint. A tuberculous abscess should be aspirated or incised.

It was left to a physician, Dr. F. Miller, to discuss the "Treatment of Superficial Tuberculous Lymphadenitis in Childhood". Dr. Miller said that that was nearly always part of a tuberculous primary complex—the infected glands were the regional glands of a primary lesion, for example, in a tooth socket or tonsil. Most of those tuberculous glands eventually caseated, even though they might have remained solid for years. Treatment aimed at reducing the period of illness, at attaining a good cosmetic result and at preventing hæmatogenous spread. Prolonged chemotherapy did not prevent softening of the glands, and the best treatment was local dissection while they were still firm, with chemotherapy before, during and after operation (for at least six months and preferably a year afterwards). When the glands were small, hard and calcified when first seen, they should be observed and removed at the first sign of enlargement and softening. If an abscess was already present, it was incised, as much caseous material as possible was removed and the wound was sutured.

Other activities of this interesting meeting were visits to operating theatres, an exhibition of surgical films (of varying standard), and short papers and demonstrations at the larger hospitals. All in all, it was valuable, stimulating and pleasant. As so often happens, some of the best moments were spent in discussion over the sherry, coffee or tea.

Correspondence.

DANGEROUS DRUGS IN COMMON USE.

SIR: I have noted with alarm and dismay the increasing number of drugs containing aminophenazone. Before 1939 most practitioners were aware of the ethical lines containing aminopyrine (aminophenazone), and were usually aware of their potential for dyshæmatopoiesis. The second World War swept most of them from the Australian market, but now reputable European drug firms are reintroducing them along with new preparations also containing aminopyrine and many war-time and post-war graduates are not aware of their potential dangers. I would not deny their therapeutic claims; but drugs which may kill or severely incapacitate patients, often taking them for minor disorders, should be well known and respected.

The number of cases dying or hospitalized as a result of taking aminophenazone may not be great, and the actual numbers would be hard to obtain. There appears to be a case for including certain cases of drug poisoning in the list of notifiable diseases in each State.

Yours, etc.,

ATHOL ROBERTSON.

Brisbane Clinic,
79 Wickham Terrace,
Brisbane.

May 15, 1959.

CIVIL DEFENCE AND THERMO-NUCLEAR WEAPONS.

SIR: I have just read David M. Storey's article, "Problems Associated with the Rapid Expansion of a Civil Hospital to Meet the Needs of Civil Defence in Possible Attack by Thermo-Nuclear Weapons" (MED. J. AUST., May 16, 1959). May I joke with him a little further?

I am fascinated with Figure I, a diagram headed "Flow of the Injured". That little star-shaped symbol at the top right-hand corner—"Site of the Injury"—is of course, for me, my home city of Melbourne after a nuclear attack. Out of it emerge two figures, one erect, one limping. I place them, by their condition, somewhere south of Frankston, north of Croydon, or some 15 miles up the Sydney road. (They could scarcely be any nearer what used to be the General Post Office, if what we are told about the 1955 vintage H bomb is indeed true.) Behind these two ambulatory characters are some 399,998 others, according to David Storey's (conservative) reckoning. One such other emerges from the left of the diagram, supported on a stretcher borne by two men who must be in the pink of condition, unless the very outer suburban population of my city at least doubled the night before the attack.

From my experience, our two ambulatory friends should reach the "Secondary Aid Station" first. He travels fast who travels off a stretcher. This impressive haven—the design is reminiscent of Gropius—is perhaps at Sorrento, Healesville, or further up the Sydney road at Seymour. All are centres which are accustomed to seasonal increase in population. So far, so good, so long as our friends are among the first couple of thousand, as of course they are; Figure I makes that clear.

Next day it seems that all good things never come to an end, so long as you have a diagram. Our two characters have several inviting alternatives. They can go home—home to Northcote, Balwyn, Beaumaris, where their wives and children (at Site of Injury) have prepared a welcome. Should the pair not be stricken with nostalgia, there is, a bit further up the road, the "Defence Welfare Center". The spelling of the word "center" rather gives this place away. It is a modest six-storey "functional" structure which, before the attack, used to be the Mangalore Ping Pong Club. "Welfare" could mean anything but so far as our peripatetic casualties are concerned, I imagine it has something to do with sore feet. They could, of course, have deviated to the left and picked up "vehicle", which holds endless promise. This magic carpet would carry them to "Serviceable Local Permanent Hospital". I place this somewhere about Violet Town, where local philanthropy has recently completed a hospital which looks remarkably like the envisaged plan for the Alfred Hospital in St. Kilda Road. Its right wing seems to have collapsed; termites, no doubt. Should they be a little late in arriving, there will be no need for anxiety, for there is the nearby "Improvised Emergency Hospital", built

ranch-style, with a broader frontage and featuring a modest five-storey central block, no doubt for administration.

At all costs our friends should avoid "Holding Station". If ever I saw a multi-storied mortuary, then "holding station" looks just that. Curiously enough, with a little balancing up on the left side, it would closely resemble Lenin's tomb. If our pair can survive the holding station, then Nirvana is in store. (There is no space to trace the stretcher case.)

At the front door of "Holding Station" is an express train, or an aeroplane, ready to take them to that paradise —the region "beyond the disaster area", where there is depicted a hospital which resembles Rockefeller Center. Clearly this is a hospital found only in those cities which are far too big to attract the attention of a mere hydrogen bomb. I place it in Sydney, New York, or maybe Caracas. Here we must leave our two casualties, far from "Site of Injury", but secure on the fortieth floor of some building, some place, somewhere. Truly, diagrams are the stuff that dreams are made of.

But there is a lesson here in Figure I. If the profession is to preside over this miraculous evacuation of 400,000 casualties (or even a fraction of them), then it must move *en masse*, and at once, from "Site of Injury" at the top right-hand corner, and take up a position in the vale of Kilmore, on the edge of the Sylvan dam, or on the practice fairway at Peninsular. After all, apart from any personal feelings we may have about the effect of a nuclear attack, David Storey's 400,000 includes at least two-thirds of the B.M.A. register for Victoria. What a pity if there were such a few doctors left on B-for-bomb Day *plus* one!

May there be some of us left to meet at the "Secondary Aid Station", and here's hoping the enemy's aim is accurate, lest all those lovely buildings turn out to be in the wrong place.

Yours, etc.,

248 Queen's Parade,
Clifton Hill,
Victoria.
June 3, 1959.

W. S. BENWELL.

EXTENDED RADICAL SURGERY IN THE TREATMENT OF CARCINOMA OF THE BREAST.

SIR: I should like to thank Dr. D. P. Ewing and Dr. John Connell for their comments (MED. J. AUST., May 29) on my paper entitled "Extended Radical Surgery in the Treatment of Carcinoma of the Breast", and perhaps you would permit me to reply to their letters in some detail. As Dr. Ewing says, "the general plan for treatment set out in the paper contains many departures from conventional therapy", and I humbly submit this is long overdue.

In simple words, it is appreciated that certain carcinomas in the breast, notably those of the inner quadrants and behind the areola, spread via two lymphatic routes: (i) to the axillary nodes and (ii) to the internal mammary nodes. Spread to the supraclavicular nodes may take place from either of these sources, and involvement of these nodes is a clinical sign of inoperability.

Although in the past, using conventional 250 kilovolt machines, the bulk of the tissue surrounding the axillary nodes made it more difficult to achieve a sufficient tumour dose of irradiation in these nodes compared with the internal mammary nodes, this no longer holds with supervoltage therapy, especially from the linear accelerator. Accordingly, both groups of nodes may now be given similar doses of irradiation. It is therefore the duty of surgeons and radiotherapists to decide which of the two forms of therapy—either surgical excision of, or radiotherapy to—these nodes is the more efficient. In my opinion, it is unsound to use one weapon on one group of nodes (simply because they are relatively easy to excise) and another weapon for the other group. Accordingly, routine radical mastectomy should have no place in the treatment of these inner quadrant and subareolar breast cancers; those who believe in surgical excision should, I suggest, perform an extended radical mastectomy as described by Urban,[1] and those who prefer radiotherapy should perform simple mastectomy and irradiate both groups of nodes.

I have stated I believe surgical excision will give better results, and the five-year survival rate clinically free of disease of 61·4%, quoted by Urban in reviewing 70 cases, compares well with the anticipated survival rate of this group of 47·8% using conventional methods of radical mastectomy and post-operative irradiation.

I should like to discuss some of the points raised in these letters in order:

Firstly, my statement was that after a well-performed radical mastectomy, axillary recurrence is rarely seen. I stand by this statement, and I can see no reason for irradiating an axilla that has been well cleared surgically. I certainly disagree, and I think many radiotherapists will disagree, with Dr. Connell's statement that there is no question that irradiation to a thoroughly cleared axilla increases the survival rate.

Secondly, I was not aware I had discredited Dr. McWhirter's work, and the discussion above certainly shows this was not intended. I stated that I believe surgical excision was preferable to irradiation in the treatment of metastatic carcinoma in lymph nodes.

Thirdly, it would seem I have been less fortunate than Dr. Ewing and Dr. Connell in seeing a number of patients who, though admittedly "cured" of their cancer, suffer from post-irradiation pulmonary fibrosis. Furthermore, I know a number of my colleagues have shared my misfortune.

Fourthly, in reference to the 15% to 20% of patients with chest wall recurrences, it has been shown these recurrences are in fact manifestations of metastatic cancer from involved internal mammary nodes growing through the intercostal spaces. I regret this point was not clearly made in my original paper.

Fifthly, to hide behind the hackneyed phrase of "biological predetermination" of cancer, to explain one's failures, achieves nothing in assessing the efficacy of a particular mode of therapy.

Sixthly, although there are numerous authors (including Patterson) who claim the value of prophylactic castration, there are many who deny it. Our knowledge of the extragonadal production of œstrogens would suggest that castration alone is a half measure only.

Finally, Dr. Connell has not appreciated that Dr. Haagensen[1] has stated quite plainly that in his triple biopsy technique he has found frozen section unreliable. Haagensen also points out it is necessary to obtain nodes from the first, second and third intercostal spaces, and these are submitted to multiple sections using paraffin prepared slides. His patients, therefore, have a delay of some days between their first operation of "triple biopsy" and the radical mastectomy if it is performed. I think this is hardly a practical proposition for most surgeons.

In conclusion, if I succeed in persuading surgeons and radiotherapists that it is no longer proper to regard radical mastectomy and post-operative irradiation as the method of choice in treating every Stage I and Stage II carcinoma of the breast regardless of the site of the primary tumour, then I will have achieved something of value rather than merely to have enjoyed this most interesting debate.

Yours, etc.,

The North Shore Medical Centre,
Pacific Highway,
St. Leonards, N.S.W.
June 4, 1959.

R. I. MITCHELL.

[1] *Surg. Clin. N. Amer.*, 1956, 36: 1065.

GROWING UP IN A CHANGING WORLD.

SIR: Last year I spent a month in the Soviet Union and three months in China. During that time I was able to satisfy myself that juvenile delinquency was not a problem in the Socialist States.

It certainly is not entirely absent but it has decreased to such an extent as to require no special measures. This is corroborated by many observers, French, English and Australian.

The factors that exercise a good influence on Soviet and Chinese youth are: (i) The absence of vicious literature such as is current in Australia today and largely comes from the U.S.A. (ii) The absence of newspapers and films whose main subject is vice and crime. (iii) The relatively scanty opportunities for drinking, very few bars and saloons. (iv) The very small place occupied by gambling in the lives of the people. (v) The very great effort to make the people cultured in every way—i.e. to raise their tastes—and the unequalled education system. (vi) The great availability without cost of every opportunity for

[1] *Ann. Surg.*, 1959, 149: 149.

physical sport. (vii) The absence of unemployment. (viii) The prevalence of early marriage and the great importance given to family life. (ix) The universal objective, viz. to wring from nature what man needs, and the consequent opportunity to develop all talents. (x) The great power of social opinion. Misbehaviour by anyone is deemed treason to the common cause—not merely the private affair of the delinquent and his or her family.

Finally, the kindly humane and patient treatment of the delinquent when detected is not merely the affair of the courts or the gaol authorities or a prisoners' aid association, it is the affair of the workers in the factory or on the farm and the delinquent's fellow citizens.

I am sure that it would pay us to send a commission to the U.S.S.R. to thoroughly study the question. We would most certainly be able to learn something useful.

Yours, etc.,

G. P. O'DAY.

196 Nepean Highway,
Aspendale,
Victoria.

May 26, 1959.

ELECTRO-CONVULSIVE THERAPY AND INTRAVENOUS ANÆSTHESIA.

SIR: A recent determination of the Federal Council (MED. J. AUST., May 16, 1959, page 680) needs further elaboration and clarification. The opinion expressed by Council is contrary to the accepted ethics of medical practice. Further, in some States of the Commonwealth, it is illegal, except under specified circumstances relating to distance, for a medical practitioner to perform two such acts.

The peculiar wording of the opinion is ambiguous. The adjective "good" applied to practice might refer to anything. Is it good for the patient as far as safety is concerned, or is it good for the psychiatrist, or is it good therapeutically for the patient, or is it good financially for both?

What considerations allowed the Council to make this determination, which is contrary to law in some instances and contrary to accepted teaching in this matter?

Where non-fatal accidents occur, will the Medical Defence Council and the courts now accept this principle in litigation for such malpractice as freeing the practitioner from blame? Will the coroner accept this principle in fatal accidents?

Will the psychiatrists practising this method have at their disposal the equipment and knowledge for handling the cases of sensitivity to relaxing agents which are bound to occur?

Yours, etc.,

B. J. POLLARD,
Honorary Secretary,
Australian Society of Anæsthetists
(N.S.W. Section).

"Harley",
143 Macquarie Street,
Sydney.

June 11, 1959.

Obituary.

JOSEPH COEN.

We are indebted to Dr. D. C. Trainor for the following account of the career of the late Dr. Joseph Coen.

Dr. Joseph Coen died on December 4, 1958, of the cardiac failure which had made him an invalid over the last eighteen months of his life. Several years earlier he had had the first warnings of his illness; but he worked on as long as he was able, and it was not until the severity of his symptoms made it clear that he would no longer be able to continue with the work which he had done so well and for so long, that he gave up practice and withdrew to face the terminal stages of his illness. He had been in practice for nearly fifty years, and had seen medicine develop from the time when much of it was empirical to the stage where it had become, at least in many of its aspects, almost an exact science. But the march of medicine had not passed him by, for he had gone forward with it. Besides keeping abreast of all that was new, he was able to view it in the perspective of what had gone before, and so had a clinical wisdom for which he was widely esteemed. Because of this, and because of his kindly and humane nature, his colleagues were always glad to have the opinion of Joe Coen, as everyone affectionately called him.

Born in Yass 78 years ago, he was the second eldest of the family of Michael and Margaret Coen. The family was very well known in the district, and it was in Yass that Joe spent his boyhood. His father was the founder of a successful business house, and the family grew up in financial security, and against the background of the placid and peaceful years which marked the end of the last century.

Joe was educated at St. Ignatius College, Riverview, where he did well, not only scholastically, but also in sport, for he played for two years in the first XV. From Riverview he went on to St. John's College within the University of Sydney to commence his studies as a

medical student. Though always a hard worker, he took an active part in university and college life, and managed to find time for football and rowing, in both of which he got his "blue".

After graduation in 1905, he was appointed as a resident at St. Vincent's Hospital. There was a good deal of empiricism in medicine in those days, and much of the instruction which the young graduate got was of the *magister dixit* sort. Many of the leading physicians and surgeons of that epoch were colourful individualists, whose teaching was based on experience and shrewd observation, often a little slanted by personal prejudice, and they stressed the practical rather than the purely academic aspects of medicine. Post-graduate teaching as we know it today scarcely existed in Sydney, and those who wished to extend their medical education, if they could afford it, went to the older medical centres of England and the Continent, where a greater variety of clinical material was available. This is what Joe Coen did at the end of his term at St. Vincent's. He went to England and "walked the hospitals", as it was quaintly termed at that time, and later did a term at the Rotunda, which was a very wise thing especially for one contemplating country practice.

He returned after about twelve months' post-graduate work, and shortly afterwards two important events happened in his life—he got married, and he acquired a practice in Lismore. His wife was formerly Miss Clara Chilcott, and she accompanied him in what is probably the most adventurous step which the young doctor and his wife take—starting in the first practice.

General practice when they went to Lismore was not an easy life. There were long calls into the country in bad weather and over bad roads. Hours were long and irregular. The absence of specialist assistance in many cases forced the general practitioner to undertake work in which he was not experienced, and so added worry to the other burdens of practice.

In spite of the hard work and worry, however, the years in Lismore were rewarding ones. It was there that his five children were born and spent their early lives. His practice grew and consolidated, and as the years passed he felt the satisfaction which comes from work well done. A sound practice, an established reputation and the confidence and respect of one's colleagues, friends and patients, are a worthwhile reward for years of work and effort.

As the years had gone by, Joe Coen's interest had turned towards internal medicine, and in 1927 he decided that he would give up general practice and take up consulting work. To give up the security of a sound practice and to face the uncertainty of making a new start in the city was a big step; but having decided on it, he arranged it all with characteristic thoroughness.

Being especially interested in cardiology, he went to the United States of America and spent some time at the Mayo Clinic, and when he returned to Australia he brought with him an electrocardiograph. There were not many of these in Sydney at that time. Whatever doubts he might have had as to whether he would be a success in consulting practice were soon dispelled. He was appointed as a physician on the staff of Lewisham Hospital and also to the N.S.W. Community Hospital, where he acted in a supervisory capacity for many years, and his practice grew rapidly.

When The Royal Australasian College of Physicians was formed in 1938 he was invited to become one of the foundation Fellows, and he always took a great interest in the affairs of the College.

Joe Coen was one of the rapidly vanishing race of consultants who graduated to consultant status through general practice. The teaching of medicine is evolving in such a way now that the aspiring specialist must specialize right from the beginning of his career, without the benefit which comes from those formative years in general practice, when he would see medicine as a whole, before entering one of its narrower branches, where he would see it only in part. That this change should take place is inevitable; but looking back on the life of Joseph Coen, one feels that he and physicians like him had a clinical wisdom which rather transcends mere clinical knowledge. His colleagues and friends, as well as all those who benefited from his help, will mourn his passing, and will sympathize with his wife and family in their loss.

MARY ALLISON INGRAM.

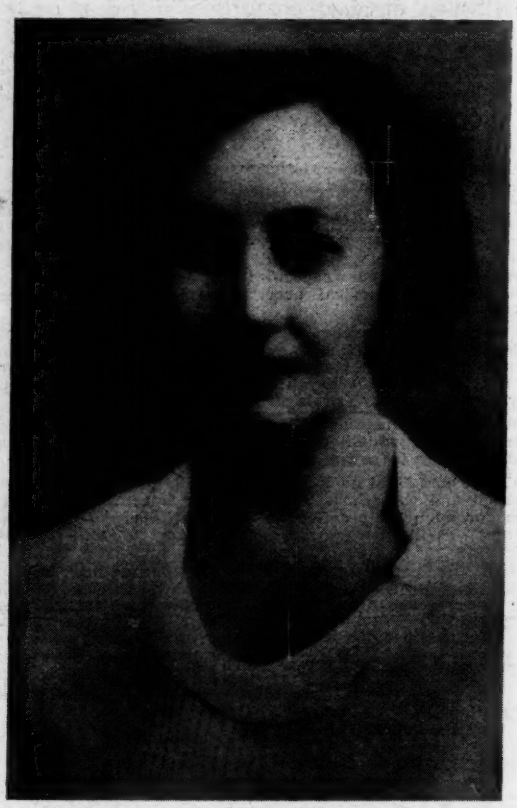
We are indebted to Dr. Mary Thornton for the following account of the career of the late Dr. Mary Allison Ingram.

Mary Allison Ingram died on February 20, 1959, in her sixtieth year. The only child of the late Mr. and Mrs. George Ingram, of Toorak, she was educated at the Presbyterian Ladies' College and graduated M.B., B.S. at the University of Melbourne in 1925. For some years she was a resident medical officer at Prince Henry's Hospital, Melbourne—"We all loved her", said one of their honoraries the other day.

In 1929 she became medical superintendent of the Queen Victoria Memorial Hospital for Women and Children, Melbourne, and here she was able to develop those powers of organization which were later to stand her in such good stead in coping with the difficulties of a Government departmental institution. Any efficient administrator can of course command the respect of her staff; Allison in addition won people's affection. The health of her residents she regarded as her personal responsibility: "Come on, eat up your porridge. You can't do a hard day's work on an empty stomach!"

She opened the X-ray department at the Queen Victoria Hospital after completing a course (and incidentally winning the first prize) in electrical technology at the Melbourne Technical School. Later she was to become lecturer in anatomy at the school for the radiography diploma course. She was one of those people who live on the principle that what is worth doing at all is worth doing well, and when she discovered that her duties as superintendent included supervision of the boiler house she returned to the technical school and did the corresponding engineering course. Nothing ever daunted her. When he was building the Jessie McPherson Intermediate Hospital, Sir William McPherson frequently consulted the Superintendent of the Queen Victoria Hospital, who spent many hours thinking out practical innovations. Hospital storms could rage around her; Allison's invariable reaction was to look a bewailer full in the eye, and say quietly "Oh dear!". Yet things became straightened out very smartly.

In 1934 she was appointed Medical Superintendent of the Children's Welfare Department in Melbourne. It was thanks to her persistent endeavours that the old name "Neglected Children's Department" was abandoned. When she took over, that name was fitting enough for an institution which would have provided Charles Dickens with unlimited copy. She transformed it. By tremendous effort she untangled enough red tape to have a playground



established. With a welfare group called "The Good Companions", she gave up most of her spare time to raising funds for the creation of a swimming pool for the children. When at last a new building was erected, she watched every stone and every detail.

Though on call day and night, during her fourteen years at the department she took no sick leave; an operation was postponed until her annual leave came due. She had something to do with the start of the child endowment scheme; she initiated the agitation for the provision of trained men of a good type to look after the delinquent boys; and she fought for many reforms which have since become normal practice at the institution. An example was the appointment, long overdue, of a kindergarten teacher (now there are four).

She was literally a mother to those unfortunate youngsters, and thought it the most natural thing in the world that a young resident at the Children's Hospital should say to her: "Take off your child's dress, mother." Little aboriginal Ronnie she took "first-footing" on New Year's Day, and her Scottish friends were assured of a year's good luck as a result of this black man's visits. Reluctant toddlers were encouraged to go for their daily walk by the promise that she would be waiting for them at the

gate with a bag of lollies, and every child coming in for examination was always greeted with a lolly—even when the police brought in strays at any odd hour through the night.

After retiring in 1947, she took a trip to the United Kingdom with her close friend and neighbour, Miss Mary Martin, who looked after her magnificently during her last years. While abroad, she took advantage of every opportunity to attend children's clinics. On her return to Melbourne she lived at Black Rock in the cottage willed to her by Elaine Macdonald Whittle, another member of our year. (It is rather weird that both women should have died at about the same age of the same disease.) Until 1953 she did part-time honorary work at the Queen Victoria Hospital.

Tiny of physique, Allison was a strong character with a first-class brain, plenty of common sense, extraordinary tenacity and a quiet sense of humour. However, the quality for which we, her friends, will always miss her most was her sheer loving-kindness.

Dut of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

APPOINTMENT OF AN ANÆSTHETIST AT POST-MORTEM EXAMINATIONS.[1]

[From the *Australasian Medical Gazette*, April, 1882.]

THE Melbourne Hospital excitement has a little subsided. Dr. Youl has gained his point, and the Committee have for the present accepted the inevitable and submitted to it. The building, however, will not be pulled down, but perhaps it will be swept if not garnished. The staff will set to work and try to remedy the evils complained of, and so the mortality will haply be a little lessened. Now, however, another subject has been started, namely, the Dead House subject. The world has attested that the viscera of patients who are examined in the Dead House are not always buried with the rest of the bodies to which they belong. Also, that limbs which are amputated in the operating room are economically interred with the bodies of pauper patients. All of which statements may be true, but what then? Half the persons who die in the hospital are buried at the expense of the State, and surely, if they are interred in instalments, what harm is done? That the feelings of survivors should be regarded is reasonable enough: but for the most part they have no survivors. They have been ministered to at the public cost, they are buried also at the public cost, and yet because the pathologist finds it sometimes expedient to reserve an organ for examination, the practice is made the subject of an article headed "Revolting Disclosures". It seems as if the average world were yet in the infancy of its mental development, and should not comprehend how much it owes to those cultivators of medical science, who, from time to time, add to the sum of pathologic knowledge by putting on record their observations of diseased organs. We find the same stupid obstructiveness in the Committee of the Benevolent Asylum, who refuse to permit the bodies of paupers dying in that institution to be used at the Medical School for anatomical purposes.

Post-Graduate Work.

SEMINARS AT THE WOMEN'S HOSPITAL, CROWN STREET, SYDNEY.

SEMINARS on obstetric and gynæcological subjects will be held on the first Wednesday of each month at 4.30 p.m. in the main lecture theatre at The Women's Hospital, Crown Street, Sydney. All members of the medical profession are invited to attend.

July 1: "Care of the Newborn"; chairman: Dr. J. Chesterman; panel: Dr. S. Stening, Dr. C. Lee, Dr. R. Vines.

August 5: "Medical Complications of Pregnancy"; chairman: Dr. S. Devenish Meares; panel: Dr. R. Jeremy, Dr. Hales Wilson, Dr. Helen Taylor, Dr. T. Robertson.

September: Post-graduate week: no seminar.

October 7: "Premature Labour"; chairman: Dr. J. Chesterman; panel: Dr. R. Macbeth, Dr. D. McGrath, Dr. W. McBride.

November 4: "Accidental Hæmorrhage"; chairman: Dr. R. Stevenson; panel: Dr. A. Grant, Dr. K. McGarrity, Dr. R. Bowman.

December 2: "Multiple Pregnancy Management and Results"; chairman: Dr. S. Devenish Meares; panel: Dr. R. Mackey, Dr. R. Macbeth, Dr. W. McBride.

SEMINARS AT THE DEPARTMENT OF SURGERY, UNIVERSITY OF SYDNEY.

THE Department of Surgery, University of Sydney, is conducting surgical seminars in the Clinical Room, Alfred and Mary Roberts Ward, Royal Prince Alfred Hospital, on Tuesdays at 4.15 p.m. Each seminar is preceded by professorial unit rounds, which commence at 2.30 p.m. The programme from June 23 to October 13 is as follows: June 23, "Carcinoma of the Bladder", Dr. H. J. Ham and the staff of the Cobalt Unit; June 30, "The Hormonal Dependency of Tumours", Dr. R. Shearman; July 7, "Gastroscopy", Sir William Morrow; July 14, "Radical Surgery for Carcinoma of Prostate", Mr. W. G. Lucas; July 21, "Carcinoma of Œsophagus", Dr. H. J. Ham and the staff of the Cobalt Unit; July 28, subject to be announced later, Dr. G. M. Kellerman; August 4, "Rehabilitation of the Surgical Patient", Dr. Adrian Paul; August 11, "A Physician's View of Gastric Surgery", Dr. S. J. M. Goulston; August 18, meeting of the Royal Australasian College of Surgeons; August 25, "The Artificial Kidney", Dr. H. M. Whyte; September 1, "Cerebral Tumours", Dr. H. J. Ham and the staff of the Cobalt Unit; September 8, "Carcinoma of the Cervix Uteri", Sir Herbert Schlink; September 15, "Endemic Thyroid Disease", Mr. J. Ziegler; September 22 to 29, Royal Prince Alfred Hospital Medical Officers' Association reunion; October 6, "Frozen Section for Bone Tumours", Dr. E. Hirst; October 13, "Current Research in the University Department of Surgery", staff of the department.

Seminars will be resumed in March, 1960.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

"Specials" Week-End Course.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a "specials" week-end course in dermatology, ear, nose and throat, and ophthalmology, will be held in the Scot Skirving Lecture Theatre of the Royal Prince Alfred Hospital, Camperdown, on Saturday and Sunday, July 18 and 19, 1959, under the joint supervision of Dr. A. Geoffrey Finley, Dr. Volney Bulteau and Dr. Frank Claffy. The programme will be as follows:

Saturday, July 18.

Section A—dermatology: 10 a.m., "Housewives' Eczema", Dr. F. J. Collett; 10.20 a.m., "Chronic Paronychia", Dr. K. G. Poyzer; 10.40 a.m., "The Use of Steroids in Skin Diseases", Dr. L. G. Abbott; 11.20 a.m., "Light Sensitivity", Dr. R. B. Perkins; 11.40 a.m., "Common Dermatological Problems", Dr. M. T. Havyatt; 12 noon, discussion of papers; 12.30 p.m., question time.

Section B—ear, nose and throat: 2 p.m., "Practical Aspects of Deafness", Dr. D. G. Carruthers; 2.25 p.m., "The Discharging Ear", Dr. T. H. O'Donnell; 2.50 p.m., "E.N.T. Emergencies", Dr. J. Tonkin; 3.45 p.m., "Nasal Obstruction and Discharge", Dr. H. D. Raffan; 4.10 p.m., discussion of papers; 4.30 p.m., question time.

Sunday, July 19.

Section C—ophthalmology: 10 a.m., "Diagnosis and Treatment of the Common External Ocular Conditions", Dr. Roger Darvall; 10.20 a.m., discussion; 10.30 a.m., "The Watering Eye and its Treatment", Dr. Peter A. Rogers; 10.50 a.m., discussion; 11.30 a.m., "The Causes and Treat-

[1] From the original in the Mitchell Library, Sydney.

ment of Sudden Loss of Vision", Dr. E. J. Donaldson; 11.50 a.m., discussion; 12 noon, "The Causes and Treatment of Gradual Loss of Vision", Dr. B. Goodwin Hill; 12.20 p.m., discussion.

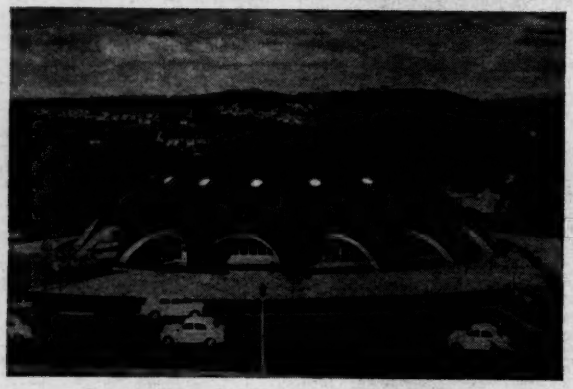
Enrolment.

The fee for attendance is £3 3s., and those wishing to attend are requested to make written application, enclosing remittance, to the Course Secretary, the Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 4497-8.

Notes and News.

The Australian Academy of Science.

On May 6, 1959, the Governor-General of Australia, Field-Marshal Sir William Slim, opened the new building in Canberra which houses the offices and conference chamber of the Australian Academy of Science. The building, illustrated here, is in the form of a dome constructed of reinforced monolithic concrete, sheathed with copper and rising from a circular moat. The unusual design resulted



from a study of the factors of climate and surroundings unique to the chosen site and from an analysis of the requirements for the varied uses to which the building will be put. It contains a central conference chamber, with luxurious seating for 150 and comfortable seating for a further 150 persons, as well as a ring of offices, a council room and a reception room.

American Heart Association.

The Board of the American Heart Association cordially invites all who are interested to attend its thirty-second Annual Scientific Sessions, which will be held in Philadelphia from October 23 to 25, 1959. The three-day programme consists of simultaneous sessions covering many aspects of cardio-vascular disease. The officers of the American Heart Association will be glad to assist with hotel arrangements. Further information may be had from American Heart Association, Inc., 44 East 23rd Street, New York 10, U.S.A.

Symposium on Road Safety at the University of New South Wales.

A symposium on road safety will be held at the University of New South Wales on Tuesday, June 30, 1959, from 9.30 a.m. until 5 p.m. The purpose of the symposium is to give engineers, educators and others concerned an opportunity for frank discussion, with the idea of developing a more basic approach so that the techniques can be more effectively applied in reducing and controlling injury and death on the roads. The symposium will be opened by Dr. Wallace C. Wurth, Chancellor of the University of New South Wales, and the opening address will be given by Dr. F. S. Hansman. The programme will be divided into four sessions, and its main features will be as follows: Session I, "Research and Road Safety", Professor W. R. Blunden, Mr. R. D. Munro; Session II, "Accident Reporting and Analysis", Mr. J. Thorpe (chairman of the Victorian Traffic Commission); Session III, "Vision and Road Safety", Associate Professor J. Lederer, "Street Lighting", Mr. H. Turner, "Pedestrian Crossings"; Session IV, "Driver Education", Mr. Hugh King, "Enforcement", Police Department, "Crash Protection and Road Safety", Dr. John Lane (Director of Aviation Medicine, Department of Civil Aviation). Those interested should communicate with Dr. Hugh Hunter, Deputy Medical Secretary, New South Wales Branch of the British Medical Association, 135 Macquarie Street, Sydney.

The International Society of Cybernetic Medicine.

The International Society of Cybernetic Medicine has recently been founded. Its purpose is to bring together research workers engaged in the study of cybernetics applied to medicine and biology, and to provide information on the method of research based upon the analogical calculus and the use of electronic models. Physicians, biologists, engineers, physicists and mathematicians may become members of the society, and copies of the by-laws will be sent on request. Applications should be addressed to the Secretariat General at 348 Via Roma, Naples, Italy.

Medical Matters in Parliament.

HOUSE OF REPRESENTATIVES.

THE following extracts from *Hansard* relate to the proceedings of the House of Representatives on April 16, 1959.

Townsville Quarantine Station.

MR. CLYDE CAMERON: My question is addressed to the Minister for Health. In view of the fact that the very fine quarantine station at Cape Pallarenda, Townsville, capable of accommodating 100 people in comfort, has had only one quarantine suspect in six years, who I understand was ultimately found to have chicken pox, not smallpox, and in view of the fact that this splendid accommodation is looked at so enviously by aged people's organizations, amongst others, will the Minister say how long it may be expected that this establishment will have to be maintained for possible quarantine use.?

DR. DONALD CAMERON: I think it is probable that the quarantine establishment at Townsville will need to be maintained for a considerable time to come. There are quarantine stations in each of the capital cities and, in addition, some subsidiary quarantine stations of which Townsville is one. It should be remembered that Queensland ports are ports of first entry for a great number of ships. I think that about 160 ships a year call at Townsville and many of them are from our near East where quarantinable diseases are prevalent. I think it would be taking a grave risk to abolish a quarantine station until we were certain that the risks of the introduction of epidemic diseases were considerably less than they are today. I do not know whether the honorable gentleman is aware that an announcement was made today of a fresh epidemic of smallpox in Sihgapore. I think that the day is still a long way off when we shall be able to abandon a quarantine station such as that at Townsville.

Laws on Radio-Activity.

MR. WHITLAM: I direct a question to the Minister for Health concerning the model act and regulations prepared by the National Health and Medical Research Council in reference to radio-active substances and irradiating apparatus. I ask the Minister: What is the explanation for the fact that so few States have so far passed the model act which was sent to them five years ago, and no State has as yet brought into operation the model regulations which were sent to all of them before the end of the year before last? I believe the position is that the acts remain dead letters until regulations are made under them, and only three States have yet passed the act, two have passed the act and have not proclaimed it, and Victoria has not even passed it. What is the explanation for this very long delay in so important a matter?

DR. DONALD CAMERON: Mr. Speaker, I think in the case of the States which have not yet passed the model act, they have made similar provision under other acts of their own, such as health laws or something of that nature. The question of the long delay, of course, is one which can be fully answered only by the State governments and not by me. However, if I can obtain more information for the honorable member, I shall do so and let him have it.

DR. EVATT: I should like to ask the Minister for Health a question supplementary to the one asked by the honorable member for Werriwa. With regard to the draft regulations or the model acts governing the use of radio-active materials, which were apparently settled as long ago as 1954 in the first place, has the Government brought them into operation in the Territories under its control, such as the Northern Territory and the Australian Capital Territory?

DR. DONALD CAMERON: In the Territories under its control, the Government has not thought it necessary to proceed to the enactment of the full series of acts and regulations as in the case of the States, because the uses of radio-active materials are governed by the Commonwealth on the advice of the Commonwealth X-Ray and Radium Laboratory, which is, one might say, the chief authority in these matters. The Government has acted in accordance with the advice given by that authority. We have in the Australian Capital Territory, which is the only place where these things are at present relevant, introduced regulations to control the non-therapeutic use of X-rays—for example, for the fitting of shoes, and things of that nature. The control of the uses of radio-active materials is constantly administered by the Commonwealth in its own Territories in accordance with the advice that it obtains from the Commonwealth X-Ray and Radium Laboratory.

Cancer Research.

MR. CASH: My question is directed to the Minister for Health. Has the Minister heard of an anti-cancer drug called krebiozen? If so, can the Minister inform the House whether he has any knowledge of the testing of this drug in America or elsewhere?

DR. DONALD CAMERON: This substance is not a drug. The honorable gentleman refers to an attempt to produce an anti-cancer vaccine. Some experiments with this substance have been made in Canada in an attempt to produce an immune serum in horses by inoculating them with extracts of human breast cancer and thereby producing a vaccine which could be used in cases of disease in human beings. The substance is still in the experimental stages. So far, it has been used only for treatment in very advanced cases of cancer where all other methods of therapy have failed. No instances of cure have been reported, although there have perhaps been some encouraging experimental results. It is likely to be a long time, and to require a great deal of further investigation, before anything of real therapeutic value can be produced in this way, if indeed it ever can.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, changes etc., are published in the *Commonwealth of Australia Gazette*, No. 26, of April 30, 1959.

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps (Medical).

1/8079 Captain (Temporary Major) H. A. Muir is transferred to the Citizen Military Forces, Royal Australian Army Medical Corps (Medical), Northern Command, 10th March, 1959.

Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—1/39192 Captain (Temporary Major) H. A. Muir is transferred from the Australian Regular Army, Royal Australian Army Medical Corps (Medical), 10th March, 1959, with regimental seniority next after 1/39211 Captain (provisionally) J. J. Heron. *To be Captain (provisionally), 17th March, 1959*—1/46882 Kenneth Russell Townley.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—The provisional ranks of the following officers are confirmed:—Captains 2/139768 J. H. Hooper and 1/39213 G. M. Windrum.

Western Command.

Royal Australian Army Medical Corps (Medical).—To be Captain (provisionally), 17th March, 1959—5/26603 Philip James McGrath.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MAY 23, 1959.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	2(1)	1(1)	3	..	..	..	..	..	6
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	1	..	..	..	..	..	4	..	5
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	2	..	..	..	..	..	..	2
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	1	13(13)	..	..	1	..	..	..	15
Diphtheria	1	..	..	..	..	..	..	..	1
Dysentery (Bacillary)	1(1)	2(2)	..	2(2)	10	..	3	..	18
Encephalitis	..	1(1)	..	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	2	..	..	2
Infective Hepatitis	43(12)	17(4)	16(4)	5(2)	..	2	..	2	85
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	..	..	..	..	..	..	..
Malaria	..	2(1)	..	..	..	..	2	..	4
Meningococcal Infection	4(2)	1(1)	1	..	..	..	..	..	6
Ophthalmia	..	..	..	..	2	..	..	..	2
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	..	..	..	..	1	..	..	1
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	6(5)	..	..	1(1)	..	..	..	7
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	13(2)	10(11)	4(2)	5(3)	..	3(2)	..	..	44
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1	..	..	..	..	..	1
Trachoma	..	..	..	..	..	..	20	..	20
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	24(24)	9(8)	8(2)	1(1)	4(2)	..	1	..	47
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

Central Command.—To be Captain, 29th January, 1959—John Derek Litt.

ROYAL AUSTRALIAN AIR FORCE.

Permanent Air Force.

Medical Branch.

Flight Lieutenant (Student) M. J. Seyfort (0312862) is appointed to a short-service commission on probation for a period of twelve months, 12th January, 1959, with the rank of Flight Lieutenant and with seniority as from 21st December, 1957.

Squadron Leader J. R. Harrison (013663) is transferred to the Reserve, 8th February, 1959, on completion of short-service commission.

The appointment of Pilot Officer (Student) D. Walters (042918) is terminated, 20th November, 1957.

Active Citizen Air Force.

Medical Branch.

No. 23 (City of Brisbane) Squadron.—Flight Lieutenant L. G. Lukin (015224) is transferred from the Reserve, 25th June, 1957.

Air Force Reserve.

Medical Branch.

The following are appointed to a commission with the rank of Flight Lieutenant:—Frank Ian Russel Martin (297994) *30th November, 1958; William Joseph Hensley* (268104), 1st December, 1958; Rodney William Farnbach (257996), 8th January, 1959.

Flight Lieutenant (Temporary Squadron Leader) J. F. Hughes (282290), is promoted to the temporary rank of Wing Commander, 25th November, 1958.

The appointment of Flight Lieutenant J. M. Purchas (0211552), is terminated, 25th November, 1958.

Honours.

BIRTHDAY HONOURS.

HER MAJESTY THE QUEEN has been pleased to confer the following honours on Australian medical practitioners:

Major-General William Dudley Refshauge, O.B.E., of Melbourne, has been created a *Commander of the Most* Excellent Order of the British Empire (Military Division).

Dr. Doris Lyne Officer, of Melbourne, has been created *an Officer of the Most Excellent Order of the British* Empire.

Dr. Grace Johnston Cuthbert-Browne, of Sydney, Dr. *Lindsay Alexander Dey of Sydney, Dr. Cecil Gordon* Harper, of Woolgoolga, N.S.W., and Dr. Arthur Parkinson, of Zeehan, Tasmania, have been created Members of the *Most Excellent Order of the British Empire.*

Notice.

BRITISH MEDICAL ASSOCIATION: VICTORIAN BRANCH.

Section of Preventive Medicine.

A MEETING of the Section of Preventive Medicine of the Victorian Branch of the British Medical Association will be held in the Medical Society Hall, 426 Albert St., East Melbourne, on Thursday, July 9, at 4.30 p.m. Dr. Brian Feery, Medical Officer of Health, City of Sunshine, will speak on "Food Contamination and Food Control". All members are invited to attend.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Willis, Francis Xavier Morris, M.B., B.S., 1952 (Univ. Melbourne), School of Public Health and Tropical Medicine, University of Sydney, Sydney.

Goldinberg, Jacob, M.D., 1923 (Univ. Warsaw) (registered in accordance ith the provisions of Section 17 (2A) of the *Medical Practitioners Act*, 1938-1958), 67 Anglo Road, Campsie.

Feller, Keith Hyman, M.B., B.S., 1958 (Univ. Sydney), 3/16 Wonderland Avenue, Bondi.

Diary for the Month.

JULY 1.—Western Australian Branch, B.M.A.: Branch Council.
JULY 2.—South Australian Branch, B.M.A.: Council Meeting.
JULY 3.—Queensland Branch, B.M.A.: General Meeting.
JULY 7.—*New South Wales Branch, B.M.A.: Council Quarterly* Meeting.
JULY 9.—New South Wales Branch, B.M.A.: Public Relations Committee.
JULY 10.—Tasmanian Branch, B.M.A.: Branch Council.
JULY 10.—Queensland Branch, B.M.A.: Council Meeting.
JULY 13.—Victorian Branch, B.M.A.: Finance Subcommittee.
JULY 14.—*New South Wales Branch, B.M.A.: Executive and* Finance Committee; Organization and Science Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS *are requested not to apply for any* appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, *Tavistock Square, London, W.C.1.*

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in *New South Wales. Anti-Tuberculosis Association of New* South Wales.

South Australian Branch (Honorary Secretary, 80 Brougham *Place, North Adelaide): All contract practice appointments* in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should *be typed with double or treble spacing. Carbon copies should* not be sent. Authors are requested to avoid the use of abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those of the list known as "World Medical Periodicals" (published *by the World Medical Association). If a reference is made* to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

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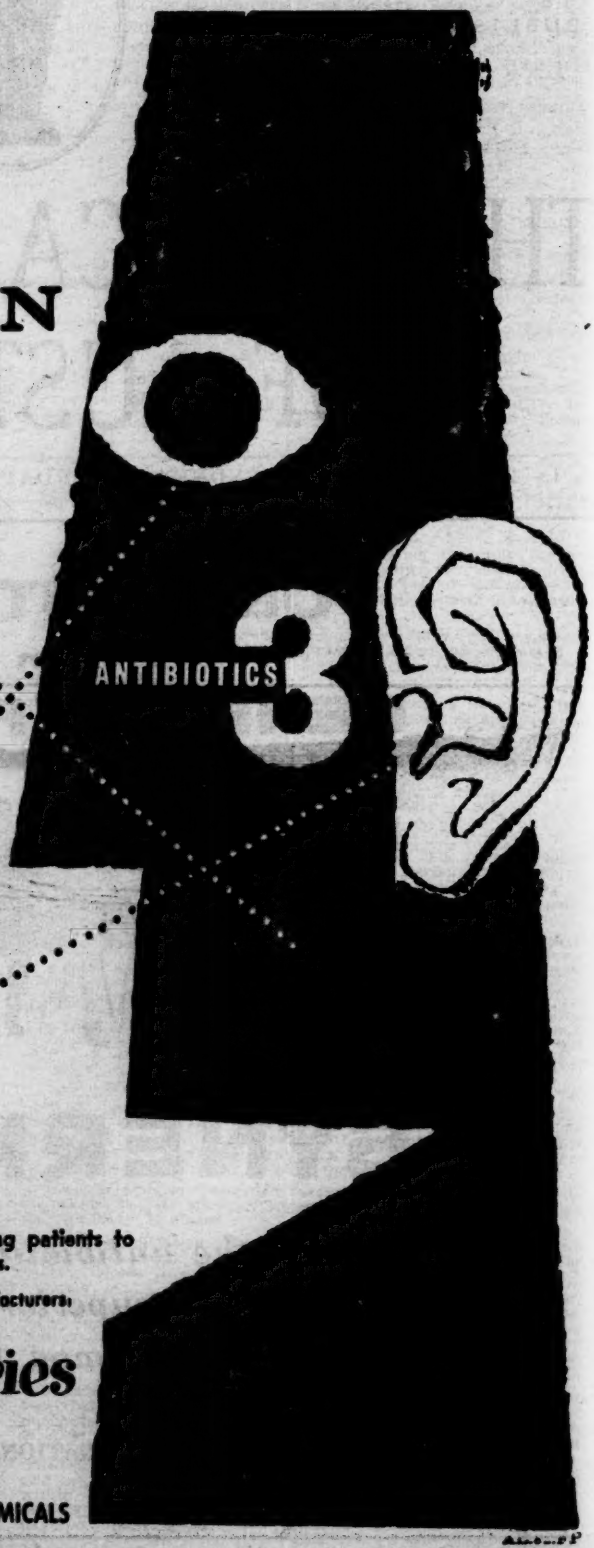

For the skin, NEOTRACIN OINTMENT. Available in ¼, ½ and 1-oz. tubes.

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For the ear, NEOTRACIN OTIC DROPS. In ½-fl.-oz. bottles with dropper.

For Disinfection in Surgery, NEOTRACIN ANTIBIOTIC SPRAY. In 4-fl.-oz. pressurized containers.

Neotracin offers topical application without sensitising patients to antibiotics used systemically for more serious diseases.

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obesity? bowel dysfunction? methylcellulose?

Methylcellulose is a white, fluffy material which forms a colourless, odourless, tasteless, neutral, inert colloidal solution in any amount of water. After ingestion it absorbs water and forms a smooth, bulky gel consisting of innumerable tiny, translucent, gelatinous particles of uniform distribution.

Methylcellulose has the following general qualities: (a) It non-toxic and has no side reactions even after prolonged usage,(1) and no allergic reactions have been recorded.(2)(3) (b) Is not changed chemically by passage through the digestive tract, nor is it metabolized.(4) (c) Has greater hydrophilic capacity than the neutral vegetable colloids.(5) (d) Acts simply as a bulking agent and does not "leak", as may paraffin preparations. (e) Has no effect on uterine motility.

PREPARATIONS:

CELLULONE TABLETS are pure methylcellulose 0·5 G. to a tablet — lemon flavoured.

CELLUMINE TABLETS combine 0·5 G. of methylcellulose with 1 mgm. of Dextroamphetamine Sulphate — lemon flavoured.

CELLULONE GRANULES are specially prepared pure methylcellulose granules (no sugar) having a strawberry flavour.

INDICATIONS:

Obesity: Methylcellulose is a useful adjuvant in this treatment by providing bulk in reducing diets. **"Cellulone"** may be employed in this way. The hydrophilic properties allow fluid adsorption with expansion of the methylcellulose in the stomach. The increased bulk curbs appetite and has a satiety effect. **"Cellumine"** is a separate and synergistic combination of 0·5 G. of methylcellulose with 1 mgm. of Dextroamphetamine Sulphate, and will achieve a more rapid weight reduction without the unpleasant side reactions frequently seen when Amphetamine is used alone. A finer adjustment of Dextroamphetamine Sulphate is thus possible, and the synergistic bulk action of methylcellulose is superimposed.

Constipation: Cellulone is non-toxic(1) and non-habit-forming.(6) **It is not a purgative** and may be usefully employed in breaking the purgative habit. It increases the bulk of the stool, which is of soft consistency and easy passage.(7)(8) It does not cause irritation and may be employed in cases of proctitis and haemorrhoids. It is of great value both pre- and post-operatively in surgery of the anal canal and when constipation is associated with pregnancy.

Diarrhoeal States: When ingested in the **dry** state methylcellulose will render the stool less fluid but of soft consistency and is valuable in such conditions as ulcerative colitis or for the colostomy or ileostomy patient. **Cellulone Granules,** which may be sprinkled on the food, is a convenient preparation for this purpose. A deodorizing property has been reported,(9) which adds to the value of **Cellulone Granules** employed in this way.

ADMINISTRATION:

Constipation and Obesity: Cellulone and **Cellumine** should be taken **with one or two glasses of water** with each dose of 3 to 5 tablets. Fluid is essential.

Diarrhoeal States: Cellulone Granules should be taken in the dry state in dessertspoon doses, preferably sprinkled on food, e.g. cereals.

References

(1) Lehman and Yonkman: Fed. Proc., 3, 65, 1944. (2) Schweig: N.Y. State J. Med., 48, 1822, 1948. (3) Davies, R. E. M.: Pharm. J., 165, 347, 1950 (4) Machle, Heyroth and Witherup: J. Biol. Chem., 153, 551, 1944. (5) Blythe, R. H., Gulesich, J. J., and Tuthill, H. L.: J. Amer. Pharm. Assoc. (Sci. Ed.), 38, 59, 1949. (6) Musick: J. Oklahoma State Med. Assoc., 43, 360, 1950. (7) Tainter: Proc. Soc. Exp. Biol. & Med., 54, 77, 1943. (8) Bargen: Gastroenterol., 13, 275, 1949. (9) Clayton-Jones, E.: Brit. Med. Jnl., p. 274, Feb. 2nd, 1957.

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For Peptic Ulcer. Where a stronger antispasmodic is required. To aid the peptic ulcer patient both motor and secretory function must be altered. Piptal does not produce urinary retention or constipation and favours healing. Dosage: One tablet three times a day before meals and one or two at bedtime.

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For the Colon. When antispasmodic therapy is needed. For ulcerative colitis and many of the host of functional as well as organic diseases of the lower colon, Cantil inhibits colonic dysfunctions and curbs diarrhoea. Dosage: One or two tablets three times a day, preferably with meals, and one or two tablets at bedtime.

CANTIL

For upper G/I tract disturbances. For upper gastrointestinal and/or biliary distress where interruption of secretory functions should be avoided. Visceral eutonic effect, plus slight anaesthetic effect, make Dactil an ideal drug as indicated. Dose: One capsule four times a day.

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For infantile Colic. Paediatric Piptal reduces the paroxysms of colicky crying, reduces the number of demand feedings and ensures normal weight gain. With Paediatric Piptal the baby will remain responsive to other stimuli. Dosage: 0.5 to 1 cc. 15 minutes before feeding and/or on demand. Safe for infants of all ages. Only one formulation. Only one pack 1 oz.

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PAIRED PIPERIDOLS .. TRIDAL *

Tridal combines the total forces of Dactil and Piptal for generalised gastrointestinal tract distress which cannot be specifically diagnosed as organic disease. Tridal provides — speed of action and prolonged relief with notable freedom from the usual "anticholinergic" — "anti-spasmodic" side effects. Dosage: One, two or three times a day and at bedtime.

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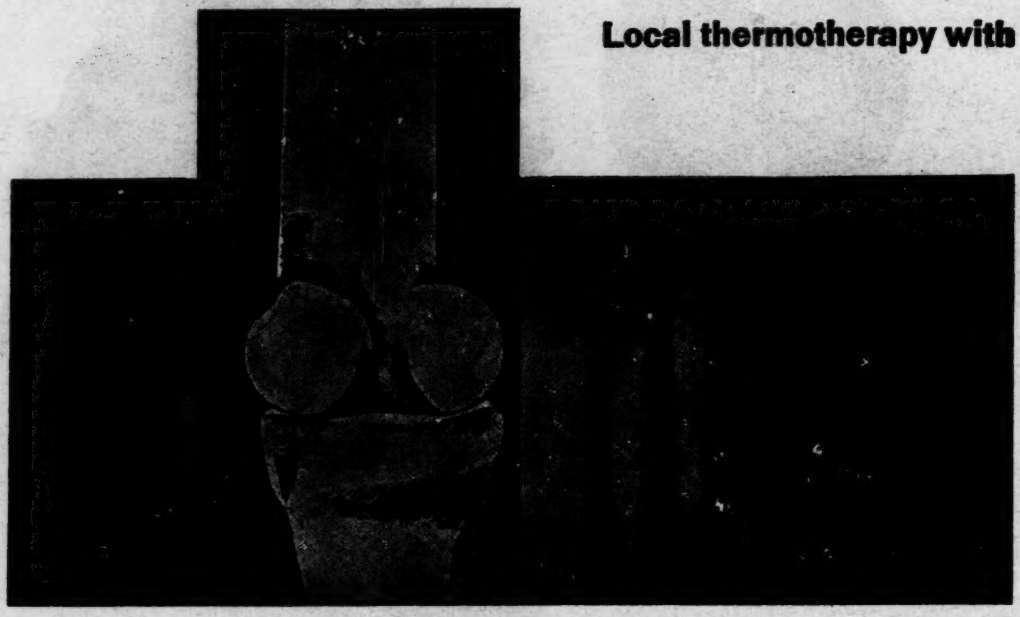

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relieves pain and promotes healing

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Basic structure of "N-A" Dressing possesses property of non-adherence to granulating wounds.

Fine mesh prevents penetration of granulation buds and so avoids bleeding on removal.

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As a result of exhaustive clinical trials conducted at St. Marys Hospital, London, as reported in the British Medical Journal, 18th January, 1957, pp 146-147, Johnson's "N-A" Dressing was acclaimed superior in all respects to traditional materials in common use.

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IT is now widely agreed that soluble aspirin is to be preferred for general administration both for its solubility and for its neutrality. These qualities ensure rapidity of absorption and a greatly diminished risk of gastric irritation. Disprin provides soluble aspirin of very high uniform quality. Disprin will be found easy and convenient to take by the patient, and its slight flavouring helps to make it palatable.

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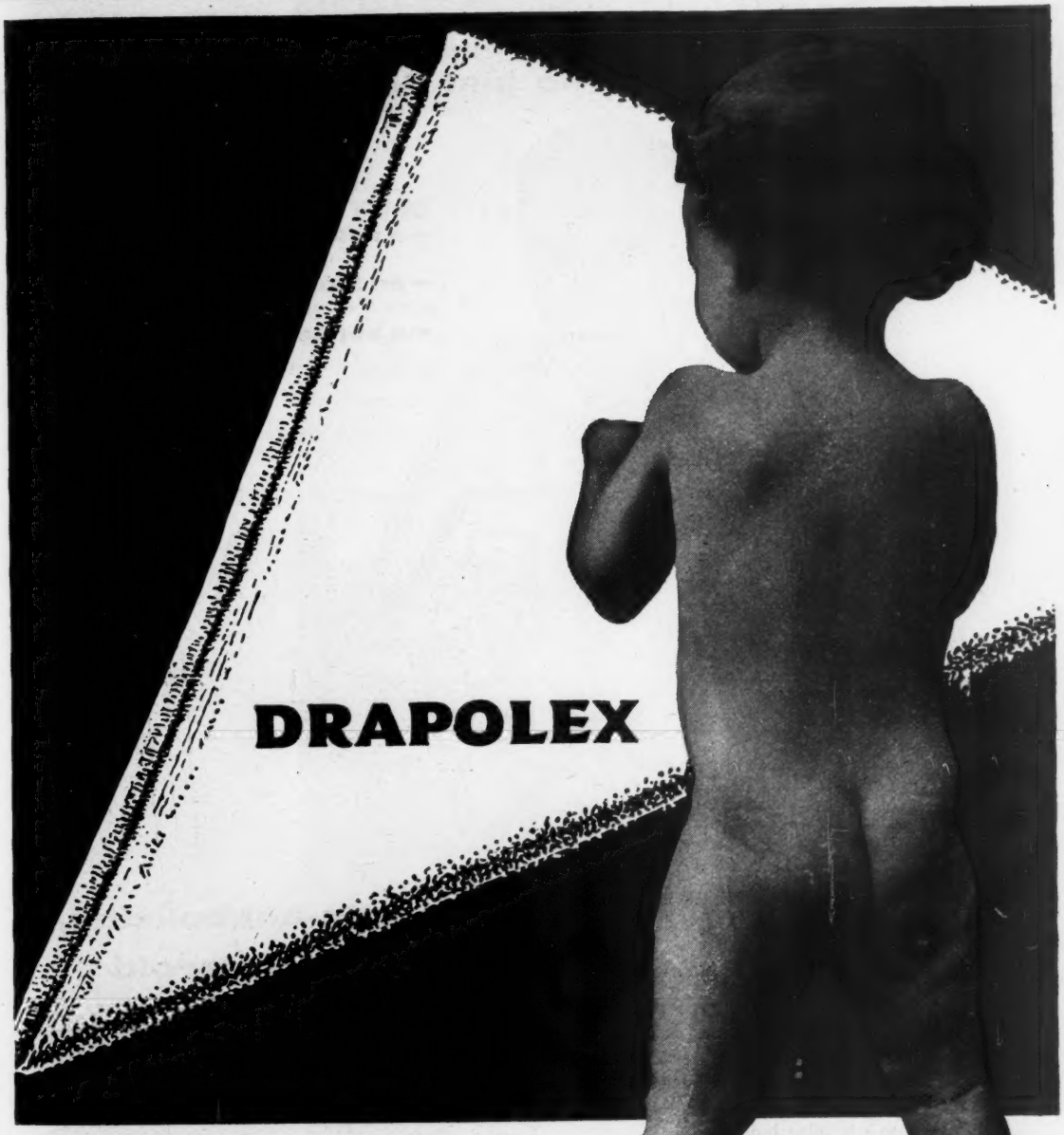

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★ Effective against the urea splitting organisms and a wide range of pathogens.
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★ Assists cleansing of the affected area.
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★ Not oily or greasy, non-staining.

Also indicated in cases of Senile Incontinence and Genito-Urinary conditions.

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PROMOTING

—a return of appetite

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—a sense of well-being

with Anabolex, the protein-anabolizing, non-virilizing steroid

PATIENTS who are run down or who are recovering from illness frequently suffer from faulty protein metabolism. They are in negative nitrogen balance. Protein, in effect, is being broken down and lost faster than it is being built up.

Anabolex (androstanolone) restores the physiological balance. Many clinical trials have shown that, following the administration of Anabolex, there is an immediate return of the body's capacity to build up protein. The patient feels better, eats better and gains weight.

Here, then, is a physiological "tonic" with a wide therapeutic range. The weakness, lassitude, lack of energy and interest associated with many pathological states may be rapidly overcome by the administration of Anabolex.

Anabolex can be safely given to patients of all ages and both sexes; in therapeutic doses, its virilizing properties are almost negligible. The only known contra-indication is prostatic carcinoma.

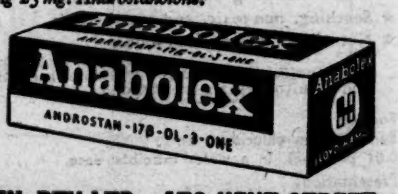
INDICATIONS:

Middle-aged or elderly people who are debilitated or "run down."

Preparation for and recovery from planned surgery.

Convalescent patients. Premature infants. The child or adolescent who is under weight. Anorexia. Asthenia. Malnutrition. Wasting diseases.

PRESENTATION: In vials of 25 and 100 tablets, each tablet containing 25 mg. Androstanolone.



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FURADANTIN first in urinary infections

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AVAILABLE UNDER PHARMACEUTICAL BENEFITS SCHEDULE 2, ITEM R29.

PROTEUS VULGARIS x 50,000. One of more than 25 organisms, commonly responsible for urinary-tract infections, that are sensitive to 'Furadantin'.

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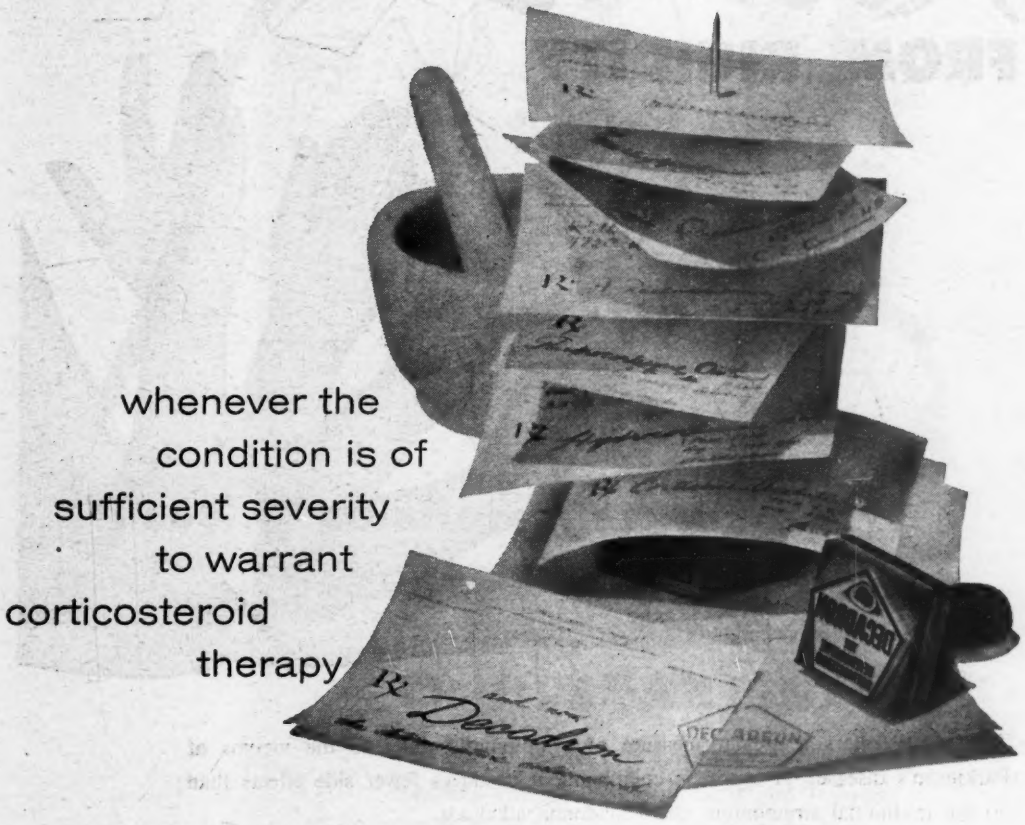

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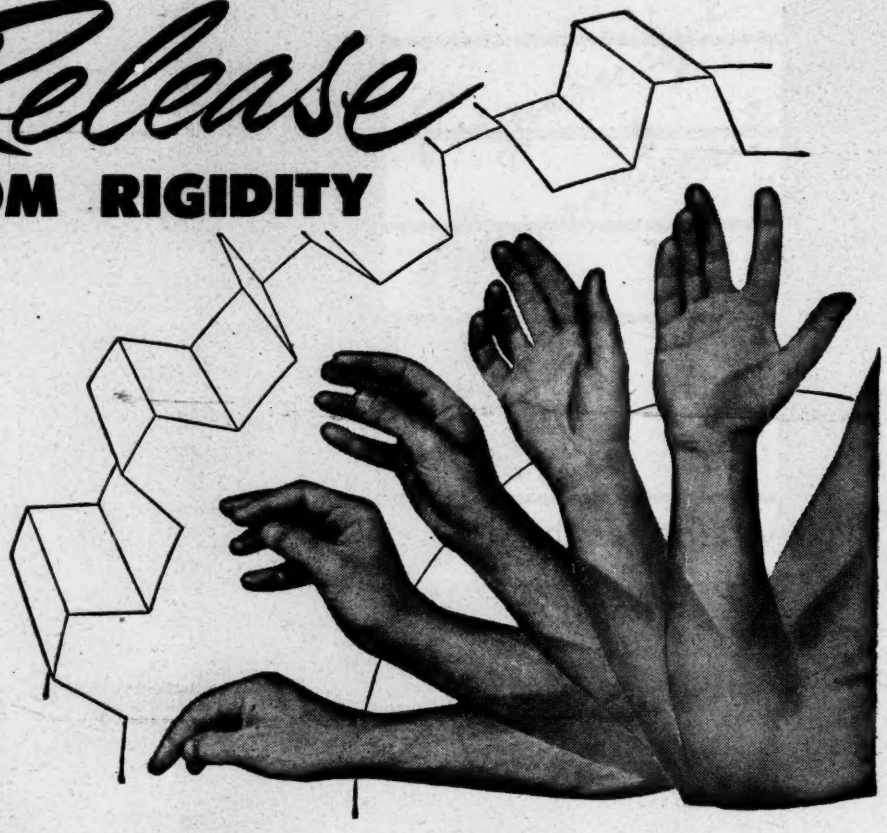

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'Kemadrin' is issued as compressed products of 5 mg. (scored for division) in bottles of 100. Further information on request to Box 1485, G.P.O., Sydney.

'Kemadrin' is available as a Pharmaceutical Benefit.

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Procyclidine Hydrochloride

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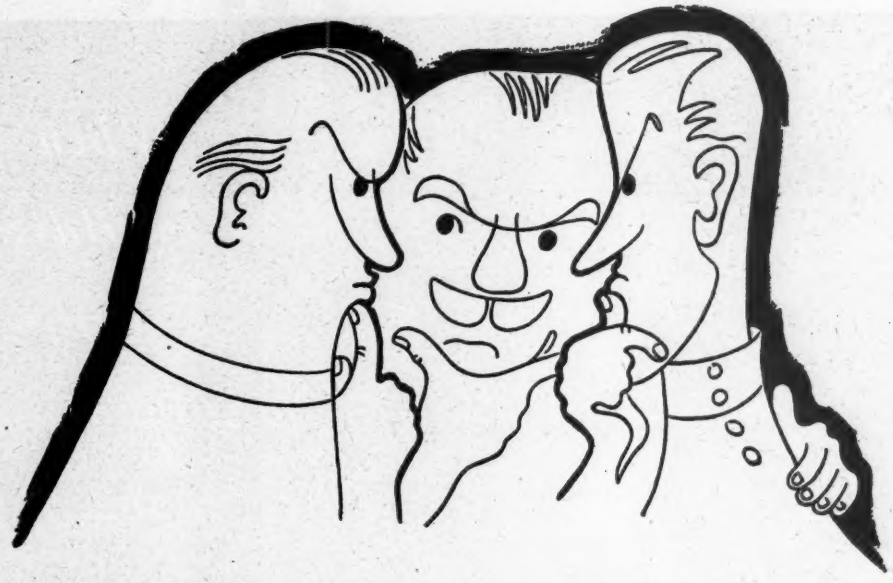

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COMPOUND SULPHONAMIDES

FLAVOURED TABLETS

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'Sulphatriad' tablets are attractively coloured and flavoured. They are supplied in containers of 100 and 500 x 0·25 G tablets.*

**May be prescribed under the National Health Act, 1953.*

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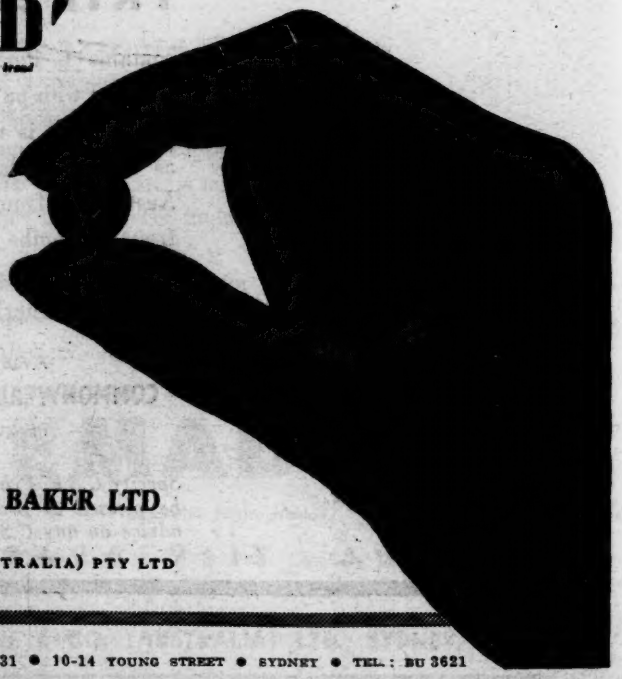

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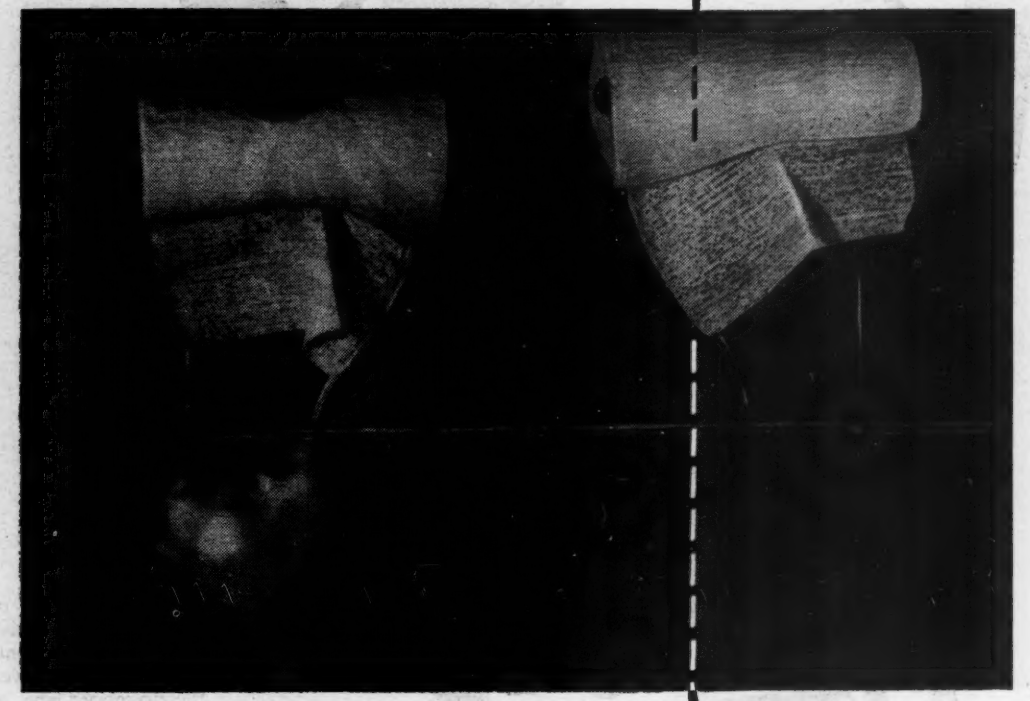

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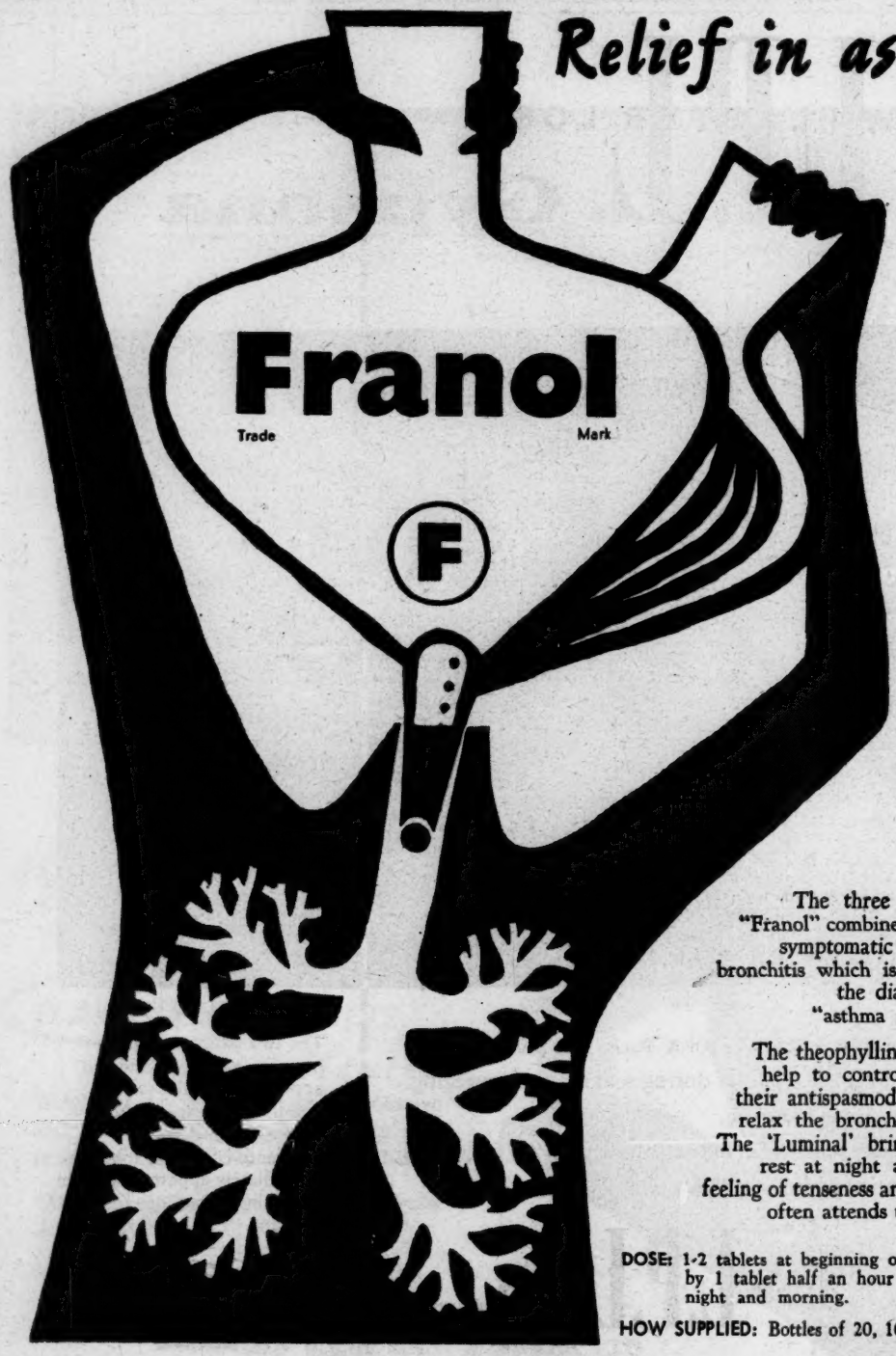
P 181

Relief in asthma



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The theophylline and ephedrine help to control the cough by their antispasmodic action and to relax the bronchial musculature. The 'Luminal' brings undisturbed rest at night and relieves the feeling of tenseness and anxiety which often attends these conditions.

DOSE: 1-2 tablets at beginning of attack, followed by 1 tablet half an hour later, or 1 tablet night and morning.

HOW SUPPLIED: Bottles of 20, 100, 500 and 1000.

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Distributors: WINTHROP LABORATORIES, Sydney, Melbourne, Brisbane, Adelaide, Perth.

Nicholas presents a new **low cost** anti-cholinergic with minimal side effects

'VELAMATE'
TRADE MARK

FORMULA: Oral tablets (sugar-coated) each 10 mg. containing: 1-phenyl-2-methyl-valerianic acid B-diethyl-amino-ethyl ester brommethylate.

INDICATIONS: Peptic Ulcer.
Chronic Cholecystitic Pains.

In addition good results have been obtained in—
gastro-intestinal spasms of various origin
spastic constipation
spasms of the urinary tract
spastic dysmenorrhoea.

DOSAGE: 1 to 2 tablets two to three times a day or at the discretion of the physician.

PACKING: 100

MANUFACTURED BY ARRANGEMENT WITH KALIE-CHEMIE · HANNOVER · GERMANY.

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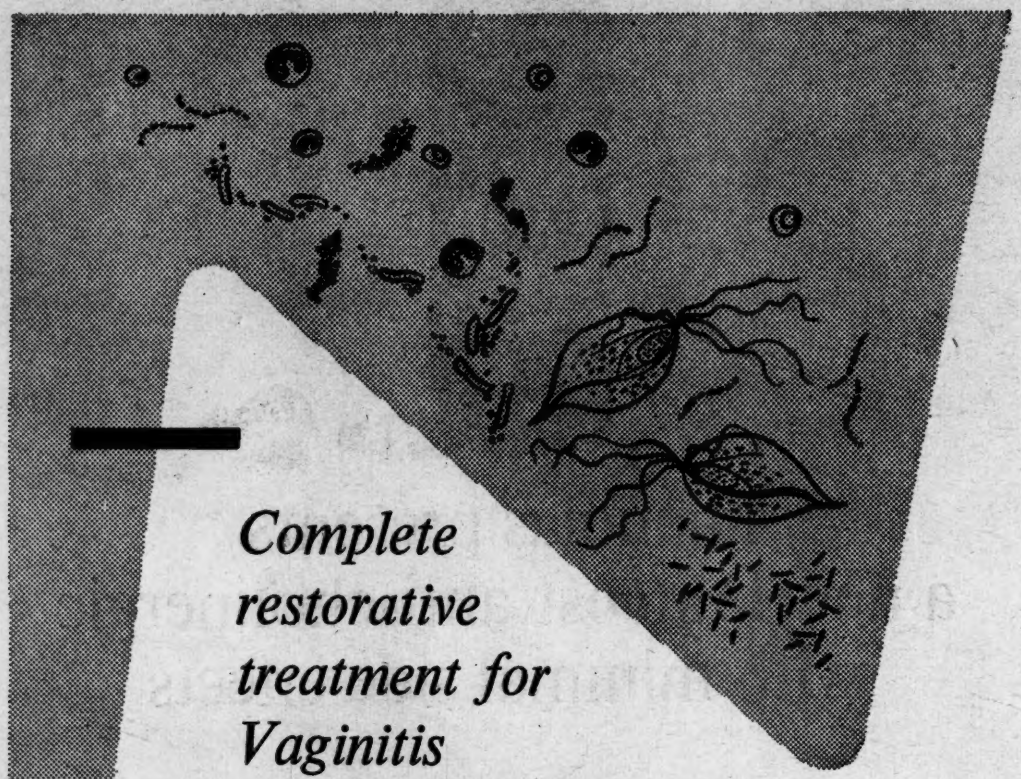

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By combining 'Diodoquin' with lactose, dextrose and boric acid, FLORAQUIN effectively eliminates trichomonal and mycotic infections and restores normal vaginal acidity favourable to the growth of protective Döderlein bacilli.

Available as tablets in boxes of 25 and 50 with applicator, as powder in 1 oz. bottles.

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brand of chlorpropamide

once-a-day dosage

An advance in potency without increase in side effects.

Diabinese exerts a hypoglycaemic effect within one hour, which becomes maximal within three to six hours. It exhibits at least twice the potency of tolbutamide. Most patients can be started on only 0.25 to 0.5 Gm. daily given as a single dose with breakfast. Incidence of side effects is in the same range as with less potent oral agents in current use.

An advance in duration of therapeutic activity.

Diabinese has a longer biologic half-life than tolbutamide. Excreted slowly, 80 to 90 per cent of one administration is eliminated in 96 hours. A single dose provides a therapeutic effect lasting 24 hours or longer. Since it remains in the blood as the active hypoglycaemic material and is only gradually removed, Diabinese affords longer-lasting clinical benefit, with relatively constant blood levels, on low, once-a-day dosage.

An advance in effectiveness over a wider range of patients.

The enhanced potency and duration of effectiveness of Diabinese is reflected in its notable record of clinical success in properly selected patients. Ninety-four per cent of excellent responses to Diabinese are in the most common group—the "maturity-onset" diabetics. Diabinese proved effective in 86.4 per cent of 1,675 patients over 40 years of age. Good results have even been obtained in a significant number of "brittle" diabetics, as well as in many patients exhibiting primary or secondary failure with tolbutamide.

SUPPLIED – 250 mg. tablets, scored; bottles of 50 and 250

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TRIBUTE

TO THE

GENERAL PRACTITIONER

"In addition to being the most numerous section of the medical community, the general practitioners are also the most important . . . He . . . best knows the family history and environment of the patient, and he alone is the arbitor as to where to send the patient in case expert opinion or special treatment is required . . . The doctor has the highest of all human privileges, to wit, helping others in their troubles, relieving them in their pain, and comforting them in their sorrows. This must, and should, compensate for all the long hours of work, all the heavy responsibilities, and the commonly all too meager financial reward . . . Now to consider the qualities that should tend to make one a success in general practice . . . To my mind, the really outstanding qualities are kindness, tenderness and understanding, which enable one to treat the patient rather than the disease. Never forget, no matter how interesting the clinical picture may be, that you are there first and foremost to bring relief to a human being. In nine cases out of ten you will find out that peace of mind is what is being sought rather than ease of body. Especially in the age we live in, when education is more universal . . . and the radio and Press of extreme power, you will tend to find that every pain in the chest is imagined to be heart disease, and every abdominal pain is due to cancer. Fear is the real bogey you will have to fight, and you can't fight fear unless you understand men. Hence, I stress once more that you will be treating human beings more than disease." — D. W. Macnamara, M.B., B.Ch., The Good General Practitioner, The Journal of the Irish Medical Association, February, 1959.

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SCHERING CORPORATION U.S.A.

Australian Affiliate

Essex Laboratories Pty. Ltd., G.P.O. Box 4058, Sydney

The advantages of oral treatment in haemorrhoids

The pain of inserting a suppository against an inflamed pile often makes treatment of an acute attack difficult. The problem can be solved by prescribing Parmacetyl oral tablets. Parmacetyl tablets also have obvious aesthetic and hygienic advantages over suppositories. They are entirely safe and cause no side effects. Their action is purely physical or demulcent, so that they cannot mask more serious underlying pathology.

How Parmacetyl works

The active principle is an inert wax, cetaceum, or cetyl palmitate (spermaceti or parmaceti of the old Herbals). Recent study[1] of the metabolism of waxes has shown that cetaceum is not absorbed to any extent in its passage down the bowel, over 70% arriving in the rectum unchanged. The melting point of cetaceum is just above body temperature so that it is tacky but not fluid in the bowel. Proctoscopic examination shows that it coats the swollen haemorrhoidal veins, checking bleeding and causing inflammation to subside.

Results of Clinical Trial

A report on Parmacetyl published from a London hospital[2] concluded "It's best use is for attacks of 'acute piles' and 'bleeding piles', but the remarkable subjective improvement noticed after its use makes it valuable even in chronic cases".

[1]McIsaac, W. M.; Williams, R. T., 1957. W.A. Journal of Biological Chemistry, 2, 42.

[2]Hinds Howell, C. A., 1958. The treatment of Haemorrhoids. Practitioner, 178, 230.

PARMACETYL *Tablets*

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[1] Herrell, *J.A.M.A.*, Dec. 6, 1958.

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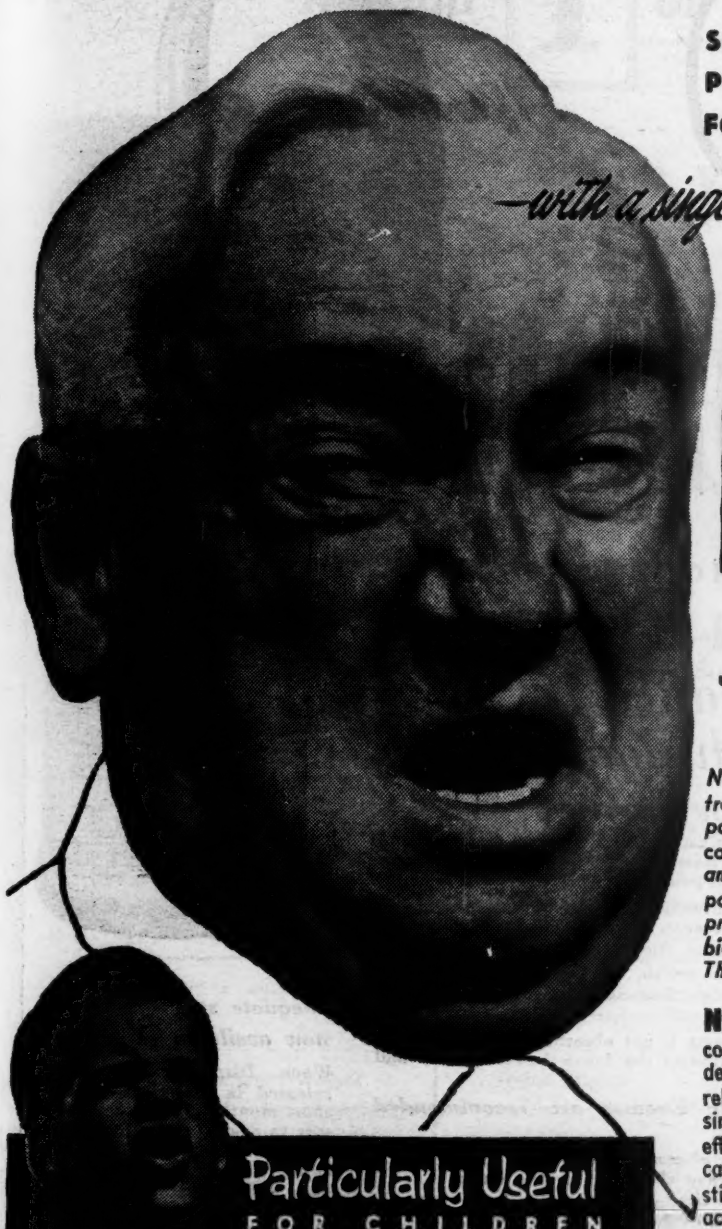

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1. Silbert, N. E.: GP, 8:25, Dec., 1953.

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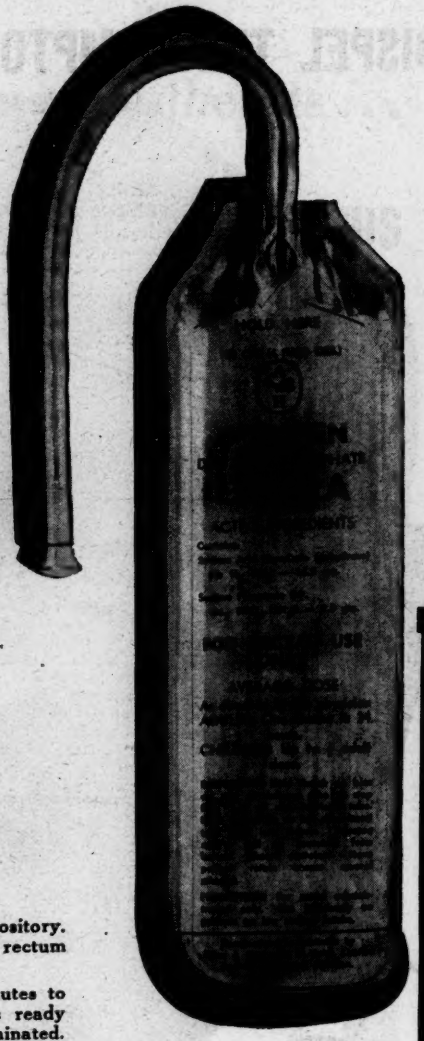

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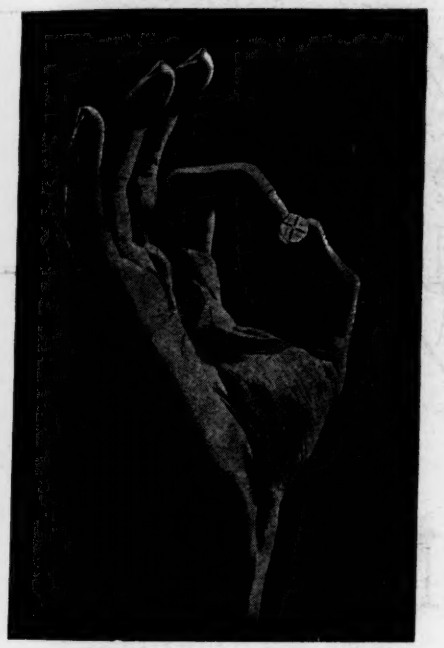

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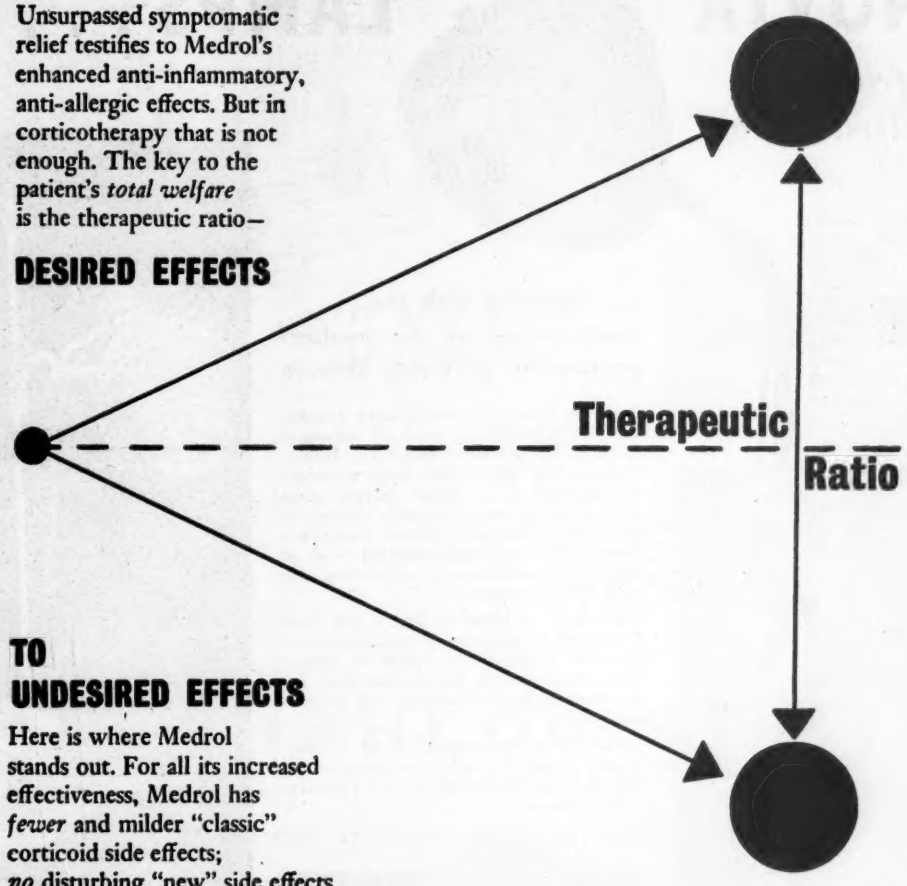

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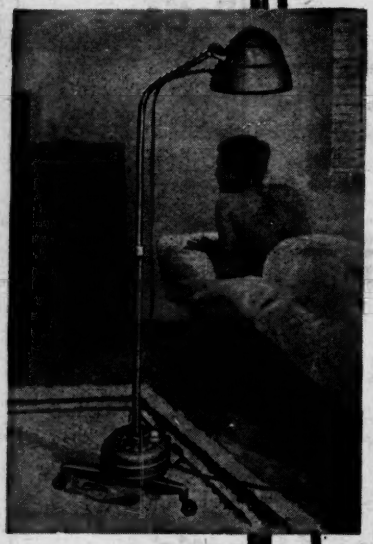

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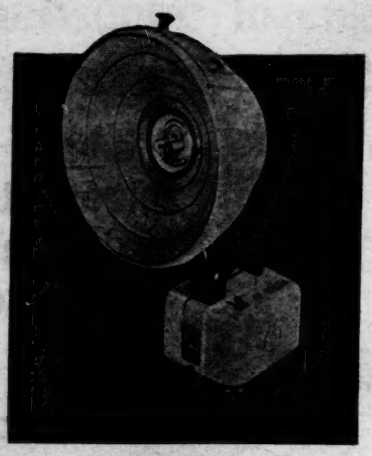

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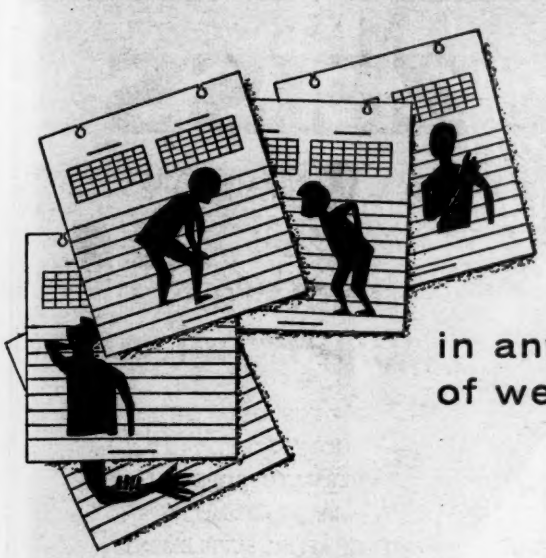

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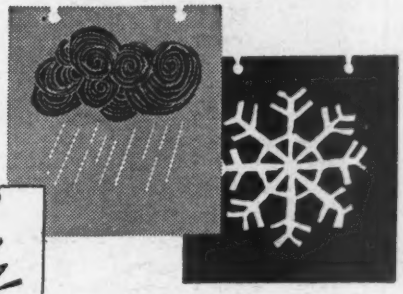

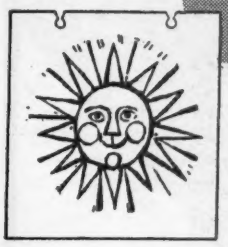

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1. "Effect of Moist Heat Therapy and Prednisone in the Treatment of Rheumatoid Arthritis." Unpublished report by Leo J. Cass, M.D., Willem S. Frederik, Ph.D., M.D., and Eleanor Dalute, M.D., Long Island Hospital, Boston, Mass., 1954.

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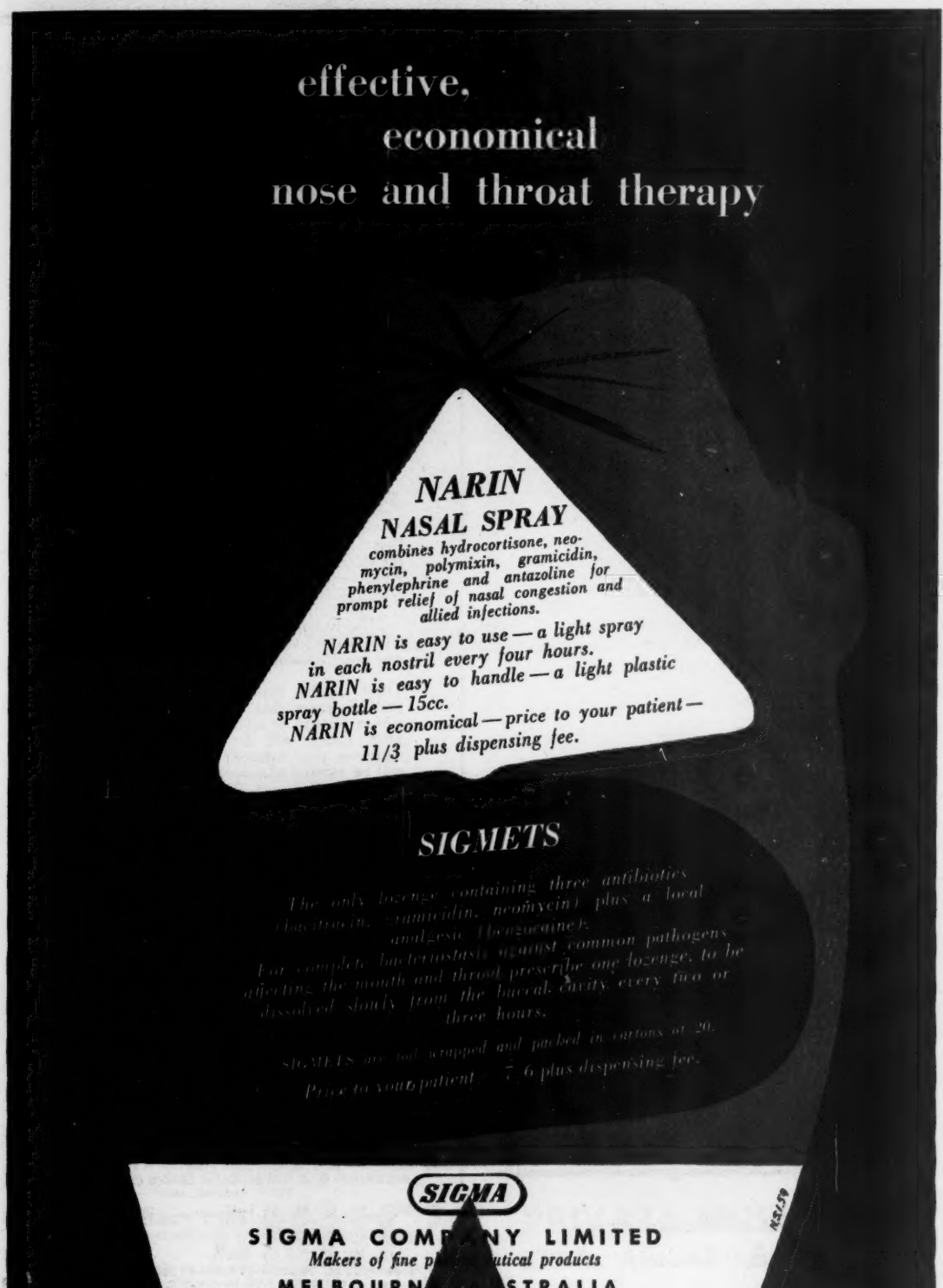
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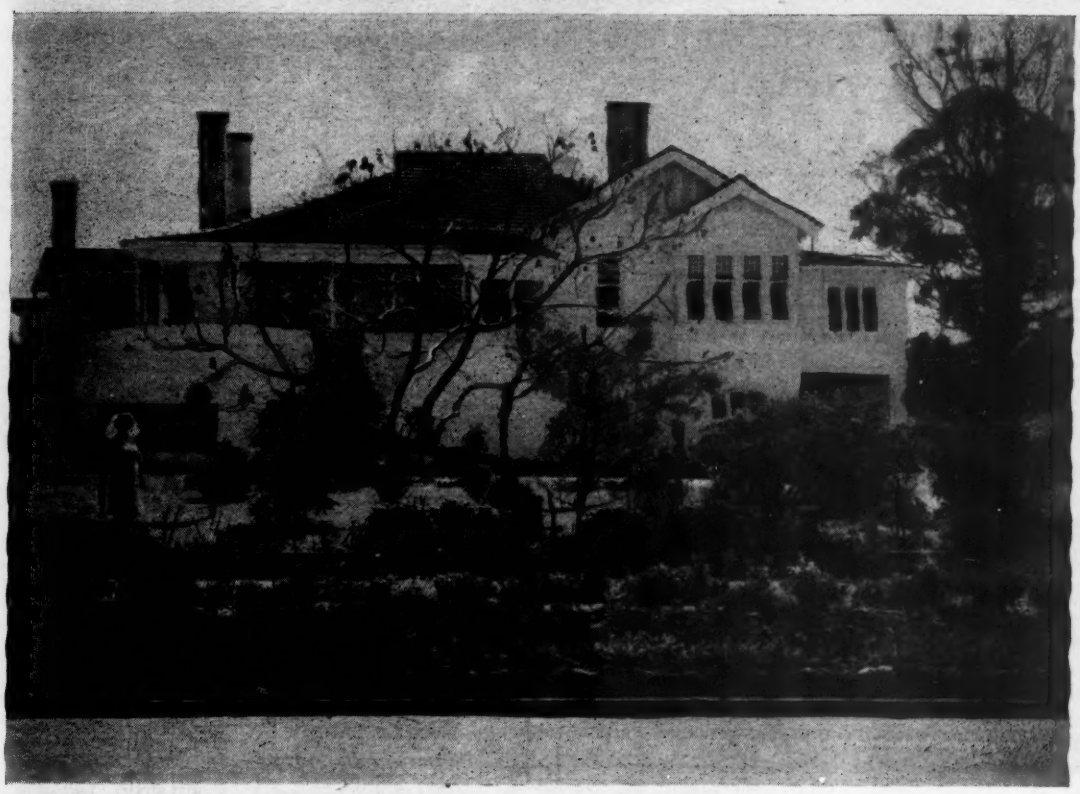

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MOUNT ISA HOSPITALS BOARD.

MEDICAL OFFICER.

Applications are invited for the position of Medical Officer to the Mount Isa Hospitals Board to be resident in Mount Isa for Mount Isa and Camooweal Districts. (No right of private practice.) Salary rate £2120 per annum plus basic wage adjustments of £99, and district allowance of £75 per annum. Appointee may accept fees for certificates issued for pensions and insurance examinations. In addition, Mount Isa Mines Ltd. will pay a bonus of £265 for each completed year of satisfactory service. Four weeks annual leave on full pay. Special Taxation Zone allowance of £270 per annum applies in this area. If the appointee provides a motor vehicle, which is desirable, Mount Isa Mines Ltd. will pay an allowance of £20 per month to maintain it.

A furnished house with electric light, water and sewerage will be provided free. Applicants are required to furnish particulars of age, marital state, qualifications and experience and war service, if any. Daily average inpatients Mount Isa Hospital, approximately 55.

The position is available from 16th July, 1959, and applicants should state date able to commence duty. Further particulars may be obtained from the Secretary, Box 63, P.O., Mount Isa, Queensland, and applications close 6th July, 1959.

CAIRNS BASE HOSPITAL, QUEENSLAND.

RESIDENT MEDICAL OFFICER.

Applications are invited for a position as Resident Medical Officer at the Cairns Base Hospital, for immediate vacancy. Medical staff comprises Medical Superintendent, Medical Registrar, Surgical Registrar, and five Resident Medical Officers. Hospital daily average 190. Active surgical unit. Salary classification, 1st year £1354, 2nd year £1509, which includes allowances to date. Board and accommodation is provided single appointee or £100 allowance in lieu to married officer living out. Specialists in surgery, medicine, orthopædics, E.N.T., ophthalmology, dermatology, psychiatry, radiology, and radium visit the hospital at regular intervals. Applications to state age, qualifications, experience and marital status, also attach copies of testimonials. Notice of termination of service one month either side. Applications close with the Secretary, Box 902, Cairns, on Wednesday, 29th July, 1959 at 12 noon.—A. C. MCALLISTER, Secretary.

WANTED. Used surgical instruments, hospital equipment, anæsthetic machines, operating tables, etc. Good prices given for any articles in reasonable condition. Write No. 341, c.o. this office.

ASSISTANT WANTED (end of June), view early partnership, western suburbs, Sydney. New home. Forty-five guineas p.w. and car allowance. Reply No. 264, c.o. this office.

PART-TIME assistantship wanted in Sydney from July 13, 1959. Mornings or afternoons. Reply No. 324, c.o. this office.

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References.

1. "The Pathology and Surg of the Veins of the Lower Limb H. Dean and F. B. Cockett, 19

2. "The Ambulant Treatment Complications Resulting fr Varicose Veins and Allied Co ditions", I. Curwen and B. Sco *Annals of Physical Medicine*, V I, No. 1, Jan., 1952.

3. "The Pathology and Trea ment of Venous Ulcers of th Leg", F. B. Cockett, *Brit. J. Sur* Nov., 1955, page 260.

Supplies obtainable from A. I CAMERON, 17 Glenview Crescen Hunters Hill, Sydney. WX 30 WX 1450.

THE RYDE DISTRIC SOLDIERS' MEMORIAL HO PITAL, EASTWOOD (SYDNEY

HONORARY MEDICAL STAFF

Applications are invited for th position of HONORARY CO SULTING PLASTIC SURGEO Appointment is for the balance of the present period which termi ates on 28th February, 19 Applications should be forward to the Secretary not later tha 10th July, 1959.

UNOPPOSED GENERAL PRA TICE FOR SALE three hou from Sydney. Gross income £5 All hospital facilities. About 6 mids. per year. Week-end ros Comfortable home. Property £4 goodwill £3000. Terms availabl Reply No. 257, c.o. this office.

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CHIEF RESIDENT MEDICAL OFFICER.

Applications are invited for the sition of Chief Resident Medical icer on the staff of the above spital. Applications, giving full tails of qualifications, should be dressed to the secretary. Salary accordance with the Agreement.

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Salary, £1896-£2446 per annum. ommencing salary within range l be determined by qualifica- ns, post-graduate experience and ation.)

Location: Branch Office, South lbourne: Repatriation General spital, Heidelberg; Repatriation t-Patient Clinic, St. Kilda Road d Caulfield.

Applications, stating date and ce of birth, professional quali- tions and experience, hospital d other appointments, war ser- e (if any), and when available commence duty, to Deputy Com- sioner, Repatriation Depart- nt, Box 87A, G.P.O. Melbourne, .

ORTH SHORE MEDICAL CENTRE (SYDNEY).

Professional suite available for se, full time or sessions. Con- ting room, secretary's room, iting room, telephone, h. & c. ter, etc. Please ring JF 2807 enings, weekends.

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ROYAL NEWCASTLE HOSPITAL (N.S.W.).

SURGICAL REGISTRAR.

Applications are invited for appointment as surgical registrar. Applicants should possess the F.R.A.C.S. Part I or its equivalent, and should have had about three years' post-graduate experience.

The training offered will be of three or more years' duration, and will consist of general, traumatic, and orthopædic surgery.

Commencing salary £28 18s. per week, plus living out allowance if applicable.

Applications should be addressed to the Deputy Medical Superintendent.—A. E. SHARP, Secretary.

PARRAMATTA DISTRICT HOSPITAL (N.S.W.).

Applications are invited from legally qualified medical practitioners for appointment as:

Senior Resident Medical Officers. Experience available in all specialties and obstetrics.

Salary in accordance with the agreement with the Hospitals Commission for Resident Medical Officers. Applications supported by copies of references should be forwarded to the undersigned. For further information, if required, ring the Medical Superintendent, YL 0333, Ext. 311.

E. L. ANDERSON,
Chief Executive Officer
and Secretary.

MATER MISERICORDIÆ HOSPITAL, WARATAH, N.S.W.

Applications are invited for:

TWO RESIDENT MEDICAL OFFICERS.

This hospital is recognized by the Royal Australasian College of Surgeons and Royal College of Surgeons, England.

Each Resident has his own room in the modern Residents' Quarters to which is attached a modern Medical Library.

At the completion of the Residents' period of training there is the opportunity of applying for Registrar position.

Salary is in agreement with the award.

Applications should be addressed to the Medical Superintendent.

ADELAIDE suburb, resigning partner's third share for sale. Gross income £22,000. Goodwill £3750. Six months' initial assistantship preferred, but not necessary. Six-roomed furnished house available at low rental. Reply No. 311, c.o. this office.

REPATRIATION DEPARTMENT —VICTORIAN BRANCH.

PSYCHIATRIC UNIT.

Applications are invited for appointment to the following position:

MEDICAL OFFICER, PSYCHIATRIC UNIT,
£1896-£2446.

(Commencing salary within the range will depend on qualifications and experience.)

The Psychiatric Unit offers an excellent opportunity of gaining experience in the investigation and treatment of psychiatric cases at R.G.H. Heidelberg, Rockingham Convalescent Home, Kew (Therapeutic Community), Out-patient Clinic, St. Kilda Road, and Repatriation Mental Hospital, Bundoora. Candidates for D.P.M. are given facilities to attend lectures, etc.

Applications, stating date and place of birth, professional qualifications and experience, hospital and other appointments, war service (if any), and when available to commence duty, to Deputy Commissioner, Repatriation Department, Box 87A, G.P.O. Melbourne.

CAIRNS HOSPITALS BOARD. COOKTOWN HOSPITAL.

MEDICAL SUPERINTENDENT.

Applications are invited for the position of Part-Time Medical Superintendent, Cooktown Hospital, about 110 miles north of Cairns. Right of private practice. Furnished residence available at reasonable rental. Daily average 8. Staff consists of Matron, four Sisters, nurse. Low taxation area. Salary classification, minimum £2450; maximum £2700 per annum, plus Basic Wage adjustments at present totalling £39. Applications stating age, qualifications, marital status, when able to commence duty, and enclosing copies of references to the Secretary, Cairns Hospitals Board, P.O. Box 902, Cairns, Queensland.

A. C. MCALLISTER,
Secretary.

ASSISTANT, view partnership, required in multiple practice (N.S.W.). New surgery block including X-ray and pathology departments with technician. Excellent hospitals. £2500 p.a. Reply No. 322, c.o. this office.

SOUTH AUSTRALIA: FOR SALE. Half share goodwill of practice in attractive river town which caters for all types of sport, including aquaplaning. Modernized hospital. Compact house for sale, reasonably priced. Terms and particulars to MALCOLM MCNEIL, 240 Rundle Street, Adelaide.

MACKAY (QLD.) HOSPITALS BOARD.

RESIDENT MEDICAL OFFICER.

Applications are invited for a position as Junior Resident Medical Officer at the Mackay Base Hospital.

Salary classification £1326-£1646 per annum, which includes Divisional Allowance and Basic Wage adjustments to date. Commencing salary in accordance with previous experience of appointee.

Free single and married accommodation available.

The Medical Staff comprises Medical Superintendent, four Resident Medical Officers, and five Part-Time Specialists. Daily average approximately 140.

Applications to be forwarded to the Secretary, Mackay Base Hospital, P.O. Box 430, Mackay.

Applicants must state full name and age, qualifications and experience, and marital status. Certified copies of testimonials should also be forwarded.

ROYAL HOBART HOSPITAL.

VACANCY FOR RESIDENT MEDICAL OFFICER.

Applications, addressed to the General Superintendent and closing on July 15, 1959, are invited to the above vacancy.

Salary range: £1081 10s. to £1331 10s. according to years of graduation.

Further details and application forms available from the General Superintendent, Royal Hobart Hospital.—H. M. WRIGHT, Secretary.

ASSISTANT REQUIRED, Eastern Suburbs, Sydney. £55-£60 p.w. Full or part time (proportionate fee). Reply No. 393, c.o. this office.

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APPLICATIONS are invited from legally qualified medical practitioners (female or male) for appointment as:

RELIEVING RESIDENT MEDICAL OFFICER FOR OBSTETRICS

until December, 1959. Commencing date 1st July, 1959, or as soon as possible thereafter.

Salary: At the rate of £950-£1475 (according to experience), plus board and residence.

ENERGETIC Assistant wanted, view partnership, inner suburban practice, Sydney. £55 p.w. (£45 salary, £5 car allowance, £5 living out allowance), increasing to £60 p.w. at the end of 6 weeks if satisfactory. Petrol and oil supplied. Preference to applicant with definite intention of permanency. Early partnership available. Married man preferred. Reply No. 246, c.o. this office.

F.R.C.S. Sydney graduate, age 36, seeks solo or group opening, city or country, on return from U.K. in Nov., 1959. Experience: R.P.A.H., R.A.N., Country Group Practice, 1950-1957. Reply No. 329, c.o. this office.

TO LET. Professional Rooms, situated in the best possible position in Bankstown, Sydney. Modern new consulting room and waiting room, and telephone. Rooms may be shared. No premium. For information, ring UY 5323.

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Further particulars will gladly be supplied on *written* request concerning the practices listed below.

Practice No. 1554. Sydney Suburb.

Solo opposed, employing assistants. Average G.C.T. £15,000. (Assistant willing to purchase half share.) Large residence including two surgeries for rent or purchase. Goodwill £6700. Property £9500. Equipment, furniture and fittings £550. Total £16,750. Cash deposit £1000, balance plus 6% p.a. interest repayable at £25 per week over 4½ years.

Practice No. 1574. Outer Sydney Suburb.

Medical and surgical employing one assistant. Average G.C.T. £17,600. Hospital 140 beds. Residence of nine rooms including 2 surgeries and waiting room. Goodwill £6500. Property £5000. Deposit £4000. Balance at 6% over three years.

Assistantship with View—Outer Sydney Suburb.

Splendid opportunity in rapidly expanding pleasant area for one interested in surgery and obstetrics. Married, own car, six months assistantship. Salary £50 p.w. Car £5 p.w., view half share. Average G.C.T. £11,000. Cash £2200. Terms, deposit £700, balance £2000 plus 6% p.a. repayable by negotiation.

Assistantship with View—Wollongong Area.

Energetic young man required by 3-man practice, period six months. Salary £55 p.w. inclusive, view partnership. Average G.C.T. £20,000.

Prompt personal attention given to all inquiries, whether by mail, telephone or telegram.

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DOCTOR'S SURGERY vacant in Sydney's most progressive suburb. No premium. Small rent. Suit pædiatric or similar specialist. Reply No. 344, c.o. this office.

YOUNG DOCTOR, with 3 years teaching hospital and 6 months general practice experience, seeks assistantship with early view of partnership in Melbourne metropolitan area. Reply No. 348, c.o. this office.

FOR SALE. Nucleus of practice, established from scratch six months, in tropical coastal city, Queensland. Modern rooms for rent centre of city, excellent hospitals. Practice must succeed. Last month's gross earnings at least £320. Doctor moving for health reasons. £500 to cover cost of furnishings and fittings. Reply No. 323, c.o. this office.

FOR SALE. German Medical Surgical Equipment (used). Examination chair, glass cabinet with instruments, tables, sterilizer with needles, chaiselongue, desk with glass top, 2 chairs, etc., all together, £60. German microscope, £25. Ring FL 1125 (Sydney) after 5 p.m., or week-end.

THIRD partner required expanding practice. Sydney Western Suburbs. Hospital facilities excellent. Preliminary assistantship at 50 guineas p.w. if necessary. Reply No. 315, c.o. this office.

WAIKATO HOSPITAL BOA... HAMILTON, NEW ZEALA...

Applications are invited f... suitably qualified medical p... titioners of the British Em... preferably with post-graduate ... gical qualifications, for the p... tion of part-time Medical Su... intendent of Te Kuiti Hospital.

Salary: £995-£1175 in acco... ance with Hospital Employe... Regulations, as determined wi... this scale by the Medical Offi... Salaries Grading Committee.

Hours: Normally over 17½ ... not over 21 hours per week, w... right of private practice.

Conditions of appointment ... form of application are availa... from the office of the New Zeal... Trade Commissioner, Sydney, A... tralia.

Applications close with the R... retary, Waikato Hospital Boa... P.O. Box 934, Hamilton, N... Zealand, on Wednesday, 16th S... tember, 1959.

BLACKALL HOSPITA... BOARD.

MEDICAL SUPERINTENDE... TAMBO HOSPITAL.

Applications are invited f... appointment as part-time Medi... Superintendent at the Tambo H... pital, Central Queensland, with ... right of private practice. No ot... doctor practising in the Shi... Free furnished residence provid... Salary £1450 p.a.

The Tambo Shire has a popu... tion of approximately 1100 peo... and the hospital has a pres... daily average of 4-5 inpatie... and approximately 12 outpatie... The hospital has adequate acco... modation and facilities includi... theatre and X-ray.

Applications stating age, qu... fications and experience ... accompanied by copies of re... ence should be addressed to t... Secretary, P.O. Box 131, Black... Queensland.

TWO-MAN PRACTICE, surg... and a physician, wishing ... build specialist group practice ... Q'land country city, seek anot... specialist as assistant with vi... partnership. Must do s... general practice. Any speciali... may apply. Commencing sal... £2750 per annum. Reply No. 3... c.o. this office.

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LOCUM available, after July ... 1959. Middle-aged, married, ... family. Can supply car. Coun... or outer suburbs (N.S.W.). Re... No. 325, c.o. this office.

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THERTON HOSPITAL.

SIDENT MEDICAL OFFICER.

Applications are invited for the dition of Junior Resident Medical icer at the Atherton Hospital, rth Queensland. Salary classi- tion at present including all sic Wage adjustments, First ar, £1318; Second Year, £1473; rd Year, £1638, to which is ed £48 northern allowance. n consideration of the success- applicant visiting Koom- bloomba Clinic fortnightly a sidy at the rate of £250 per um will be paid until June, 60, at least. Transport will be vided or alternatively mileage ll be paid for the use of own r at Public Service rates. furnished flat is provided to commodate a married couple h one child. Free Board and dging provided for a single rson. Daily average inpatients, outpatients 60. Please use mail post.
Applications to:

W. H. SHERRIN,
Secretary.
Atherton Hospitals Board,
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OCUM AVAILABLE, Sydney Metrop. Area. Full or part- e. Experienced G.P., own car. ply No. 330, c.o. this office.

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Diploma in Anæsthetics; Diploma in Psychological Medicine; Diploma in Ophthalmology; Diploma in Radiology; Diploma in Laryngology; Diploma in Child Health; F.R.C.S.Eng., and all Surgical Examinations; M.R.C.P.Lond., and all Medical Examinations; M.D. Theses of all Universities; Courses for all Qualifying Examinations. Complete Guide to Medical Examinations sent free on application. Applicants should state in which qualification they are interested. Address: Secretary, Medical Correspondence College, 19 Welbeck St., London, W.1.

LOCUM TENENS. An attractive opportunity, for a locum tenens in a northern tropical city while the principal is overseas from the end of the first week in July until December 31st. The climate is ideal during this period.

Applicant with a Fellowship or Part I preferred, but other applicants with some surgical experience considered. The practice is primarily surgical but involves a good deal of general practice. It is anticipated that the G.P. aspect would predominate during the locum. There is no midwifery.

The guaranteed minimum salary would be £50 per week, but the actual reimbursement would be on a "percentage of gross takings" basis.

The surgery is modern and air conditioned. A comfortable, fully furnished, 3 bedroom home and car would be provided rent free.

It is anticipated that the principal will be available for interview in southern capitals from Monday, June 29. Reply in the first instance to No. 338, c.o. this office.

QUEEN VICTORIA MEMORIAL HOSPITAL,
172 LONSDALE STREET,
MELBOURNE.

APPLICATIONS are invited from legally qualified medical women for appointment to the following positions:

Honorary Medical Officer to Out-Patient Diabetic Clinic.

Honorary Pædiatrician to Neo-Natal Follow-up Clinic.

Period of appointment: 4 years. Present holders of honorary positions are eligible for reappointment.

Applications are also invited from medical women for the following positions:

Honorary Associate Obstetrician.

Honorary Associate Gynæcologists (2).

Honorary Associate Surgeon.

Honorary Associate Pædiatric Surgeon.

Honorary Associate Pædiatrician to Neo-Natal Department.

Honorary Clinical Assistants to Medical, Surgical, Gynæcological, Pædiatric and Ante-Natal Clinics.

Period of appointment: Twelve months.

Applications, to the undersigned, close 29th July, 1959.—NELL STEPHENSON, Manager.

ASSISTANT or Locum available from July 13, 1959. Single, with own car. Sydney preferred. Reply No. 319, c.o. this office.

BLACKALL HOSPITALS BOARD.

MEDICAL SUPERINTENDENT.
ISISFORD HOSPITAL.

Applications are invited for the appointment as part-time Medical Superintendent at the Isisford Hospital, Central Queensland, with the right of private practice. No other doctor practising in the Shire. Free furnished residence provided. Salary £1450. Salary will be subsidised to the extent of £350 per annum for a preliminary period of three years by a Local Committee.

The Isisford Shire has a population of approximately 1000 people and the hospital has a present daily average of 2-3 inpatients and approximately 12 outpatients. The hospital has adequate accommodation and facilities including theatre and X-ray.

Applications stating age, qualifications and experience and accompanied by copies of reference should be addressed to the Secretary, P.O. Box 131, Blackall, Queensland.

HOSPITALS DEPARTMENT.
ROYAL ADELAIDE HOSPITAL.

Applications will be received by the Secretary to the Board, 169 Rundle Street, Adelaide, until THURSDAY, 2nd JULY, 1959, for the position of:

SURGICAL REGISTRAR
(Involving duty in Casualty Department)

for the period ending 31st March, 1960.

An appointment will be made within the salary range: minimum £1281, maximum £1721 per annum and the commencing salary will be determined according to qualifications and experience. Salaries quoted are actual and include the bonus of £75 per annum which is only payable on satisfactory completion of the term of appointment. Accommodation is available for a single person, otherwise a living out allowance at the rate of £146 per annum will be paid, less a deduction for board and lodging provided whilst actually living in according to roster.

Applicants must submit full names, date of birth, particulars of practical experience, military service (if any) and copies of testimonials.

SUTHERLAND SHIRE DISTRICT HOSPITAL.

HONORARY MEDICAL STAFF.

Applications are invited and will be received up to 11th July, 1959, for the following position on the Honorary Medical Staff of the above hospital for the balance of the current term, ending in 1961.

HONORARY ASSOCIATE DERMATOLOGIST.

Applications are to be made on the hospital's printed form which may be obtained on request.

K. J. N. TUCK,
Secretary and Chief Executive Officer.
P.O. Box 21,
Caringbah, N.S.W.

EXPERIENCED G.P., 1952 graduate, special interest obstetrics, would like to purchase partnership or share of group. Prefer outer Western Suburbs (Sydney). Reply No. 347, c.o. this office.

WILLIAM PEARCE
MEDICAL AGENCY SERVICE

No. 531. A group of four practitioners seeks a partner to replace a member who intends to retire. The practice has been established for 50 years in a N.S.W. industrial township and has a gross income of about £34,000. Goodwill, comfortable weatherboard residence of 4 bedrooms and share of modern surgery block, in all £8000. Finance can be arranged on £2500.

No. 532. A particularly sound unopposed general practice is offered for transfer in a pleasant riverside township in Northern N.S.W. Current gross income exceeds £6000. Comfortable brick residence of four bedrooms also contains waiting room, surgery, laboratory, etc. Goodwill £3000. Freehold (including surgery furniture and plant) £3500. Deposit £1500. Balance 3 years.

No. 533. South Coast, N.S.W. Half share available in an opposed general practice established over 70 years. Present partnership has gross income of £18,000. Goodwill £4000. Modern brick residence of four bedrooms in excellent order for sale at V.G. value £8250.

No. 534. Central coast, N.S.W. General practice established 35 years. Average gross cash takings £8000. The district is developing rapidly and a new hospital is projected. Comfortable brick residence including professional rooms to rent at £6 per week. Goodwill £4000 on terms over four years.

WILLIAM PEARCE
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149 Castlereagh Street, Sydney.
Phone: 61-8821.

REPATRIATION DEPARTMENT—SOUTH AUSTRALIA.

SPECIALIST (Pathology).

Applications are invited from registered medical practitioners for permanent appointment to the position of Specialist (Pathology) at Repatriation General Hospital, Springbank.

Salary: £2281-£2886.
Location: Adelaide.
Duties: Responsible for medical advice in regard to his specialty. Diagnosis, assessment and treatment of cases as required.
Qualifications: Registered medical practitioner with appropriate post-graduate degree or diploma in the specialty.
Applications: Deputy Commissioner, Repatriation Department, P.O. Box 902E, Adelaide, by July 11, 1959.

LONG-TERM LOCUM required, 12 months approx., for a Sydney shipping and industrial practice. Office hours. Salary and allowances to £50 per week. Reply No. 343, c.o. this office.

EXPERIENCED LOCUM available week-ends and evenings. Phone WJ 3553 (Sydney).

POSITION WANTED as doctor's secretary on North Shore or Macquarie St. (Sydney). Experienced. Preferably part time. Reply No. 350, c.o. this office.

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